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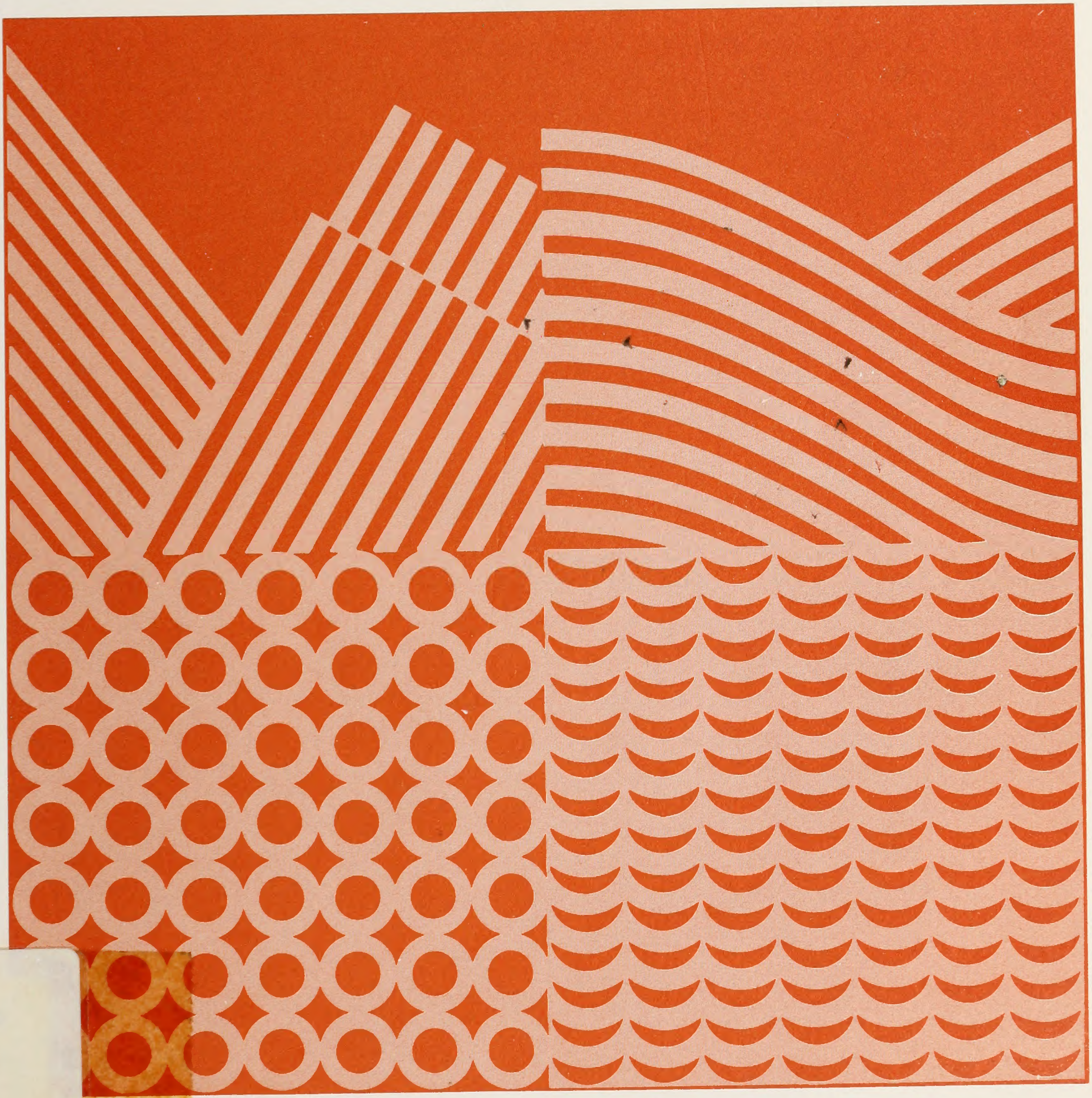
Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming

Final Environmental
Impact Statement
OSM-EIS-3

U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement



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TO THE READER:

The enclosed document is the Southern Appalachian Coal Region Draft Environmental Impact Statement - II (DEIS) developed by the Eastern States Office of the Bureau of Land Management (BLM). Today starts the 60-day review and comment period for the DEIS, culminating in a Public Hearing in Tuscaloosa, Alabama, on August 31, 1983. The Notice on the inside cover gives the details concerning the DEIS, the comment period and the Public Hearing (as amended by the enclosed ERRATA Sheet). Commentors are urged to mail in their comments at their earliest convenience.

Thank you for your interest in the Federal Coal Program in the Alabama Subregion of the Southern Appalachian Coal Region. For further information contact the Tuscaloosa Office, BLM, 518 19th Avenue, Tuscaloosa, Alabama (205) 759-5441; or the Jackson District Office, BLM, at the address given in the DEIS.

Sincerely yours,

Edwin L. Roberson

Edwin L. Roberson
Assistant EIS Team Leader

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ERRATA

The Notice on the inside cover of the DEIS refers to the August 26 date for receipt of all comments. This has been changed. All comments should be received by no later than August 31, 1983.

P. 26 para. 2 should read as follows:

"OSM still has primary responsibility with regard to FMO, ..."

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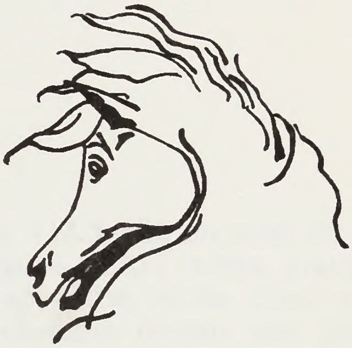

Federal Coal Lease W-23929

Final Environmental Impact Statement
OSM-EIS-3

February 1981

Type of Action: Administrative

Prepared by the
U.S. Office of Surface Mining Reclamation and Enforcement
in cooperation with the U.S. Geological Survey

Walter N Heine
Director

COVER SHEET

Responsible Agency: Office of Surface Mining Reclamation and Enforcement

Proposed Action: Approval of the mining and reclamation plan submitted by Mobil Oil Corporation for the Rojo Caballos mine as modified by the Office of Surface Mining Reclamation and Enforcement

For Further Information:

Robert Schueneman
Office of Surface Mining Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

(303) 837-5656

Type of Statement: Final

Abstract: Mobil Oil Corporation proposes to mine 317.5 million tons of coal over a period of 24 years. In the process, 3,811 acres would be disturbed. There are 10 coal mines in operation in the area, and 5 more have been proposed. One research-scale in-situ coal gasification operation has been started in the area. Mobil's mine in conjunction with the other mines would create significant socioeconomic impacts on Gillette and Campbell County, Wyoming. Other impacts, which would be typical of surface coal mining operations in northeastern Wyoming, would be moderate or insignificant except that the cumulative removal of agricultural and wildlife lands would continue to increase until large areas were reclaimed and returned to agricultural and wildlife uses approximating premining levels. In addition, transportation impacts, especially from railroad traffic, from the mine would add to the impacts already occuring in the region. The Office of Surface Mining has proposed stipulations to be added to the mine plan to bring it into compliance with Federal and State regulations.

Comments must be received by : March 19, 1981.

PREFACE

Mobil Oil Corporation proposes to open a surface coal mine, the Rojo Caballos[1] mine, in the eastern Powder River basin. Mobil has submitted a mining and reclamation plan to the Office of Surface Mining Reclamation and Enforcement (OSM), which has identified stipulations necessary for the plan to comply with Federal laws and regulations. This environmental impact statement (EIS) discusses the alternative actions that the Secretary of the Interior may take on Mobil's plan, as well as the impacts of these actions. The EIS identifies a "preferred alternative": to approve the proposed mine plan as modified by stipulations to bring the plan into compliance with Federal laws and to mitigate impacts.

Chapter I of this EIS discusses the need for a Federal decision on Mobil's mine plan, and summarizes Mobil's mining method and schedule. Chapter II summarizes the various alternatives, including approval of the modified plan, and briefly compares their effects. Chapter III briefly describes the environment to be affected, in order to show the setting of the proposed mine. Chapter IV analyzes the effects of the preferred alternative in greater detail.

These analyses suggest that there is no way of mining the 317.5 million tons of coal at the Rojo Caballos site with appreciably less impact. The environmental cost of mining this amount of coal is about as low as can reasonably be expected with current technology. This is based principally on the thickness of the coal seam, which results in less disturbance per ton of coal, climate, and agricultural use of the land. The interdisciplinary team believes that the proposed plan (as modified by stipulations) employs the best current technology. The final EIS has been changed to reflect new information from the applicant and from studies prepared for OSM in addition to comments made on the draft EIS.

A final decision approving the preferred alternative or another alternative will be made by the Assistant Secretary, Energy and Minerals, pursuant to the Surface Mining Control and Reclamation Act of 1977 and the National Environmental Policy Act of 1969, 30 days or more after distribution of this final environmental impact statement. Anyone wishing to comment on OSM's recommendation or the analysis of alternatives may do so within 30 days after release of the final EIS. After the Departmental decision is made, anyone whose interest is or may be adversely affected may request an adjudicatory hearing on the final decision pursuant to 30 CFR 787.11.

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[1] Rojo Caballos is meant to be Red Horse or Red Horses. The correct use of the Spanish words would be El Caballo Rojo or Los Caballos Rojos.

SUMMARY

This environmental impact statement (EIS) describes Mobil Oil Corporation's plan for the proposed Rojo Caballos mine as modified by technical changes (stipulations) necessary to meet applicable Federal, State and local requirements. The Office of Surface Mining Reclamation and Enforcement (OSM) is responsible for the EIS; it was prepared by an interdisciplinary team consisting of members from both OSM and the U.S. Geological Survey. Concurrent with the EIS, a technical analysis was prepared to determine compliance with the Surface Mining Control and Reclamation Act of 1977. The technical changes to the mine plan were derived from this analysis.

Description of the proposal

Mobil Oil Corporation proposes to open the Rojo Caballos surface coal mine in the eastern Powder River Basin, Campbell County, Wyoming, 17 miles southeast of Gillette. The mine plan area, comprising 5,815 acres of gently rolling topography, is used for ranching and wildlife. Mobil would extract 317.5 million short tons of low-sulfur subbituminous coal during 24 years, and in the process would disturb 3,811 acres. The mine would contribute as much as 15 million tons per year to the Department of Energy's annual production goals for the Powder River coal basin--7.3 percent of the 205 million tons projected for 1985, and 3.7 percent of the 396 million tons projected for 1990. Estimated current and future production from existing and proposed mines in the basin is 164, 253, and 262 million tons in 1980, 1985, and 1990, respectively. Mobil has a 20-year contract to supply 2.5 million tons per year, with an option for an additional 2 to 3 million tons.

Need for Federal decision

OSM has modified Mobil's mining and reclamation plan (MRP) by stipulations so that it complies with Federal and the State of Wyoming's regulations implementing the Surface Mining Control and Reclamation Act. This EIS discusses approval of this modified MRP and alternatives to this action as a basis for the Department of the Interior decision. Because Mobil holds a lease (W-23929), a decision on the proposed mine plan and permit application is required by law (Mineral Leasing Act of 1920, as amended).

The Secretary could approve the modified MRP with the stipulations listed in alternative A; disapprove the MRP (alternative B); delay decision on the MRP (alternative C); or take "no action" (alternative D). The Secretary could also propose that Mobil exchange the existing lease for another coal lease, or for other Federally owned mineral leases of equal value. This alternative would require Mobil's consent.

Impacts of the preferred alternative (Alternative A)

The Rojo Caballos mine-plan area is part of a much larger area of present and possible future coal mining. This larger area, which extends from north of Gillette south to the Campbell County line, is about 80 miles long and 5 miles wide. Viewed in this context, the impacts of the mine would be typical of surface coal mines in the area. The mine (about 6 mi^2) would be a small part of about 400 mi^2 of changing landscape due to energy development in the area. With mining already in progress north and south of the lease, the addition of the Rojo Caballos mine would add to the impacts that are already occurring. When viewed in terms of the eastern Powder River basin (7,780 mi^2), the impacts on the mine site become insignificant. However, these impacts add to the effects of all other coal mining activities in the Powder River Basin. Thus, the significance of the impacts from the Rojo Caballos mine depends in large part on the perspective.

OSM's analysis indicates that the cumulative socioeconomic impacts from the Rojo Caballos mine would be moderately significant. All the other impacts, except for ground water and transportation, even when considered with those from other mines in the area, would be insignificant in that none would: violate legal standards; harm rare, threatened, or endangered species; destroy sites listed in the National Register of Historic Places; disrupt unique or critical habitat; be highly controversial; or present unique or highly uncertain risks.[1] Nor would the mine interfere with either the present use or the future usability of the region's renewable resources. Impacts from the Rojo Caballos mine would be about the same as those from the other coal mines in the area. The environmental costs of mining the 317.5 million tons of coal could not likely be appreciably lessened either by mining somewhere else or by using a different method of mining. This observation is based on: (1) the large amount of coal per unit of land disturbance, (2) the availability of rail transportation, (3) the absence of rare or endangered species habitat, (4) the existence of a community which has been able to accommodate rapid growth caused by energy developments, and (5) a comparative analysis of impacts in three other coal producing regions.[2].

Together, all the existing and proposed energy developments in the eastern Powder River basin have had and would continue to have significant socioeconomic impacts on Gillette and Campbell County. The increased population would create an additional demand for services such as police, fire, water supply, waste disposal, health, and recreation. Although Campbell County should be able to finance most of the demands placed on it, Gillette is having trouble financing many of the improvements.

The following briefly summarizes the impacts of the preferred alternative.

During mining, the geologic strata up to a maximum depth of 375 feet, soils, and vegetation on as much as 3,811 acres of the minesite would be progressively excavated. Changes in stratigraphy would be permanent. Soil structure would be radically changed and then would reform over time. The vegetative productivity and the use of the land (grazing and wildlife) should be restored to premining levels within 10 years after revegetation begins. Although vegetation would support a land use similar to that before mining, postmining vegetation would be somewhat different from the existing vegetation. Mining would remove part of one antelope winter range and a sage grouse lek. Although there would be a loss of wildlife during mining, it is expected that wildlife populations would return to normal following reclamation. The lowered ground water levels due to mining of the overburden and coal aquifers and to pumping water from a deeper aquifer would still be noticeable 30 years after mining ceases, and may take up to 50 years to completely recover. Some of the wells, if they only partially penetrate the overburden aquifer, might have to be deepened to fully penetrate the aquifer, but the major impact would be the increased cost of pumping the water. The quality of the ground water in the replaced overburden would not be as good as that existing now (680 to 2,690 milligrams per liter total dissolved solids), but would still be acceptable for anticipated postmining uses (3,000 to 5,000 milligrams per liter total dissolved solids). Mobil is required to replace any water supply affected by their mining.

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[1] These are criteria used in 40 CFR 1500 as examples of significance. However, this does not include cumulative impacts as well as other appropriate criteria.

[2] An unpublished report, Analysis of alternative coal mining regions for the Rojo Caballos EIS, available from OSM, Brooks Towers, 1020 15th Street, Denver, Colorado 80202.

Despite some degradation of air quality in the mine vicinity, the quality of the air would still meet Federal and State standards. Traffic to and from the mine would cause and encounter short delays, increase the noise level, and add to maintenance requirements of the roads. If blasting is done in accordance with regulations, only short-term minimal impacts would result. When the mine is at full capacity, 26 110-car unit trains would convey coal from the mine each week. This would increase the noise, and the possibility of accidents and delays at crossings along the railroads south and east of the mine. No cultural resources eligible for nomination to the National Register of Historic Places have been identified. Those resources that have been identified would be inventoried and recorded prior to disturbance.

The mine would add about 1,900 and 2,900 persons, respectively, to the population increase in Gillette and in Campbell County resulting from energy development by 1990. Such population increases are already placing a heavy demand on these two governments (particularly Gillette) to provide services, such as police, fire, water supply, waste disposal, health, recreation. Because the mine would increase the property valuation, the County generally would be able to meet the demands placed on it. Gillette would not have an immediate source of additional income, and already is experiencing difficulty in financing improvements. The applicant's socioeconomic mitigation proposal submitted to the Wyoming Industrial Siting Commission and OSM would mitigate some of these impacts.

Mining and associated facilities would add a visual intrusion to the generally rural landscape during construction, active mining, and until reclamation is complete. This intrusion would be part of a larger area of strip mining including the adjacent Belle Ayr and Cordero mines. The intrusion is generally local in that the mine site is located on the east slope of a hilly area away from major viewing areas. After reclamation, most of this impact would be removed.

Impacts of other alternatives

Alternative B: Disapproval

Under this alternative, the adverse environmental impacts associated with the preferred alternative would not occur. However, Gillette has invested in capital improvements to help public services meet the demand of the increased population caused by this and other mines. Disapproval could, therefore, result in an adverse financial impact to the City in that the expected population increase would not be there to help pay for the improvements.

Disapproval would be necessary should the applicant not accept the stipulations designed to meet Federal and State laws.

Alternative C: Defer action

Under this alternative the Secretary could approve the preferred alternative but stipulate that Mobil begin mining at a later date.

This alternative was considered because Gillette could require time to provide needed service facilities to accommodate the increased population. However, the City has started construction of an additional water supply system, street improvements, and other services. It is not certain that the population increase from other new or expanding mines would be enough to pay for these increased services. Similar to alternative B, this alternative could have an adverse financial impact on Gillette. The other socioeconomic impacts might be different because the population and economy of the area are changing. The environmental impacts would be similar to the preferred alternative except that they would be delayed.

Alternative D: No action

The impacts due to the preferred alternative would not occur if "no action" were taken. Any mining or other resource uses needed to meet energy demands would have to occur elsewhere.

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CHAPTER I

INTRODUCTION

PROPOSED FEDERAL ACTION

The proposed Federal action is approval of the mining and reclamation plan (MRP) submitted by Mobil Oil Corporation for the Rojo Caballos mine with the stipulations added by the Office of Surface Mining Reclamation and Enforcement (OSM) of the U.S. Department of the Interior. The MRP was prepared for the area included in Federal lease W-23929 (appendix E) issued to Mobil on February 1, 1971. The stipulations would bring the MRP into accordance with the Permanent Regulatory Program (30 CFR 741 and 211) and the regulations of the Wyoming Department of Environmental Quality carrying out the Surface Mining Control and Reclamation Act of 1977 (SMCRA), conditions of the Federal coal lease, and all other applicable Federal laws.[1]

NEED FOR FEDERAL DECISION

Mobil holds a Federal lease (W-23929) authorizing submission of a mining and reclamation plan for the mining of the coal and has submitted a plan. All terms of the lease have been met. Therefore, the Secretary of the Interior is required to make a decision on the MRP. This environmental impact statement (EIS) describes the impacts that would occur if the modified mine plan is approved, and discusses alternative actions the Secretary of the Interior could take on this modified plan. This EIS is written in compliance with the National Environmental Policy Act of 1969, as amended, (42 U.S.C. 4321 et seq.) and the regulations of the Council on Environmental Quality (40 CFR 1500 et seq.).

APPLICANT'S PROPOSAL

Mobil's lease is 17 miles southeast of Gillette, in Campbell County, Wyoming (fig. I-1). The mine plan area, comprising 5,815 acres of gently rolling topography, is used for ranching and wildlife habitat. The areas immediately north (Belle Ayr Mine) and south (Cordero Mine) are currently being mined by other companies (fig. I-1). Environmental impact statements have been prepared for these mines (U.S. Geological Survey, 1975, 1976), for the proposed Pronghorn Mine to the northwest (U.S. Geological Survey, 1979), and for the Eastern Powder River Basin (U.S. Bureau of Land Management, 1974 and 1979a), which include site specific statements for the Black Thunder, Buckskin, Jacobs Ranch, North Rawhide, and Wyodak mines.

Mobil owns all the land surface except a narrow strip in the top of sec. 3, T. 47 N., R. 71 W., a small corner of section 4, and a small corner of sec. 8, which are owned by Meadowlark Farms, Inc. (Amax); a narrow strip across the top of sec. 16,

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[1] The Secretary of the Interior has conditionally approved the Wyoming State Program, Federal Register, v. 45, no. 230, p. 78902 (November 26, 1980), to implement SMCRA.

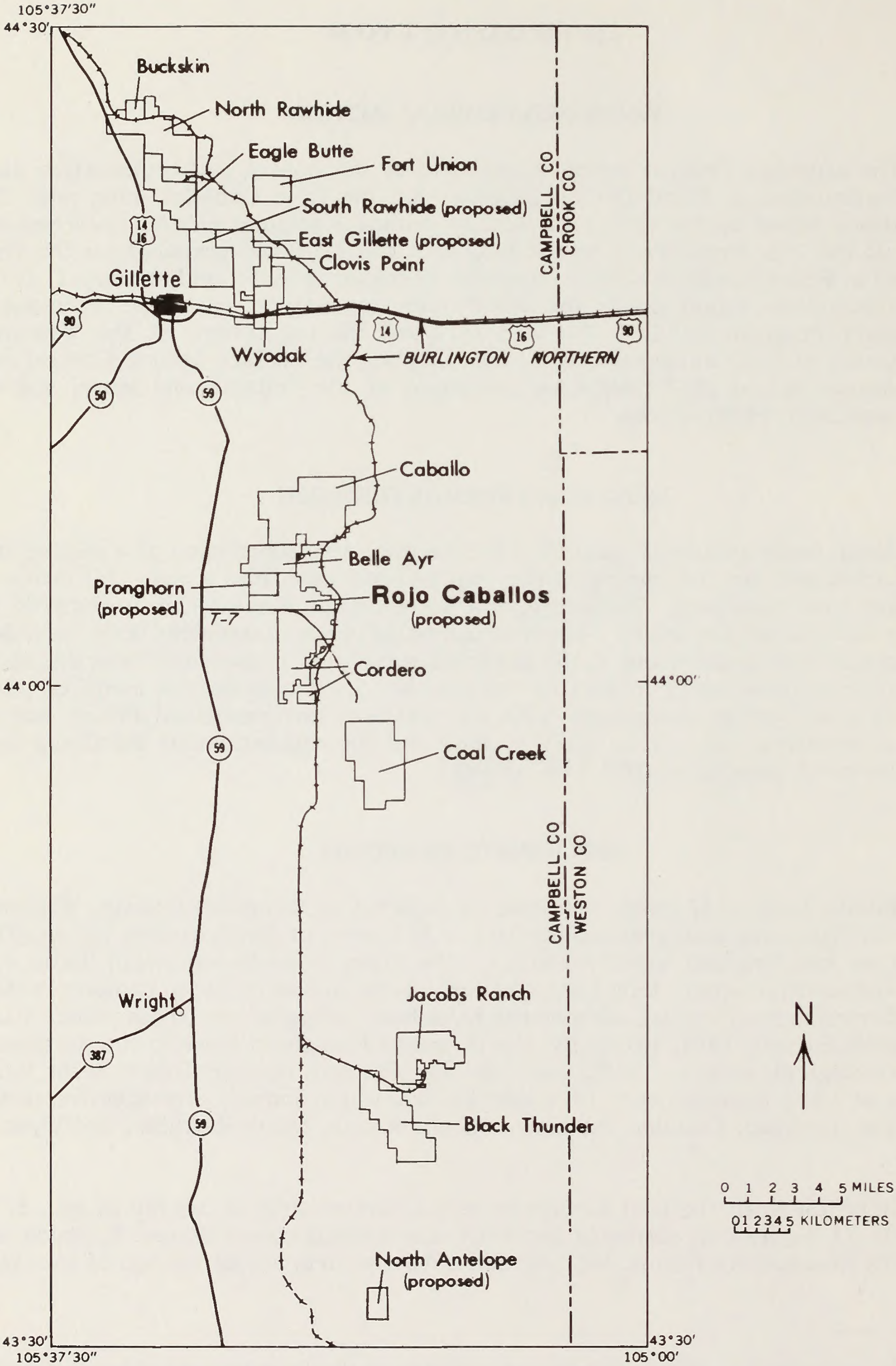

Figure I-1.--Location map, Rojo Caballos mine.

which is owned by the State of Wyoming; and a narrow strip across the top of secs. 13 through 15, which is owned by Sunoco Energy Development Company. The coal is owned by the Federal Government or Mobil except for a narrow strip across the top of sec. 16, owned by the State of Wyoming, and blocks in the southwest part of sec. 2, the northeast part of sec. 3, and the northeast part of sec. 12, which are owned by Leslie C., Bonnie A., Glen, and Sylvia Clabaugh and by Meadowlark Farms, Inc.

Mobil proposes to extract 317.5 million short tons of low-sulfur subbituminous coal from the Wyodak-Anderson coal bed and, in the process, would disturb a total of 3,811 acres of land (fig. I-2) over the 2 years of construction and the 24-year mine life. Of these 3,811 acres, 3,549 acres would be mined, 170 acres would be used for facilities, 26 acres would be used for roads and the railroad spur, and 66 acres would be used for topsoil storage.

The mine is designed for a maximum production of 15 million tons per year. Current production from the existing mines in the area is about 58 million tons (Wyoming Geological Survey, written communication, 1980). The U.S. Department of Energy has identified production goals for the Powder River coal basin of 205 million tons per year in 1985 and 396 million tons per year in 1990 (U.S. Bureau of Land Management, 1979b, table 2-18). Estimated production for these years from existing and proposed mines is 253 and 262 million tons, respectively (U.S. Bureau of Land Management, 1974 and 1979a). However, the Wyoming Geological Survey estimates that coal production will only be about 120 million tons in 1985 and 133 million tons in 1990. Production from the Rojo Caballos mine would contribute 7.3 and 3.7 percent, respectively, to the Department of Energy goals.

The coal would be mined by surface methods and transported by unit trains to powerplants for generating electricity. Mobil's initial contract with Western Fuels Association calls for delivering a total of 2-1/2 million tons of coal per year for 20 years to the Laramie River Station in Wheatland, Wyoming, and the Holcomb Station near Holcomb, Kansas. This contract also contains an option for delivery of an additional 2 to 3 million tons per year. An estimated maximum of 493 persons would be employed at the Rojo Caballos mine during full production. Schedules of coal production, overburden removal, surface disturbance, and employment are shown in table I-1.

To minimize disturbances to wildlife, Mobil would include vegetation of value to wildlife in their revegetation plan. Fencing would be designed to facilitate deer and antelope movement, and an attempt would be made to restore a sage grouse lek (breeding ground).

Mobil has developed and submitted to OSM as part of the MRP a socioeconomic program to alleviate some of the impacts on the community. This includes assistance in providing housing for construction workers, relocation assistance for permanent workers, purchase of local improvement district bonds, and other related community impact mitigation measures.

A more detailed discussion of the MRP is in Appendix A.

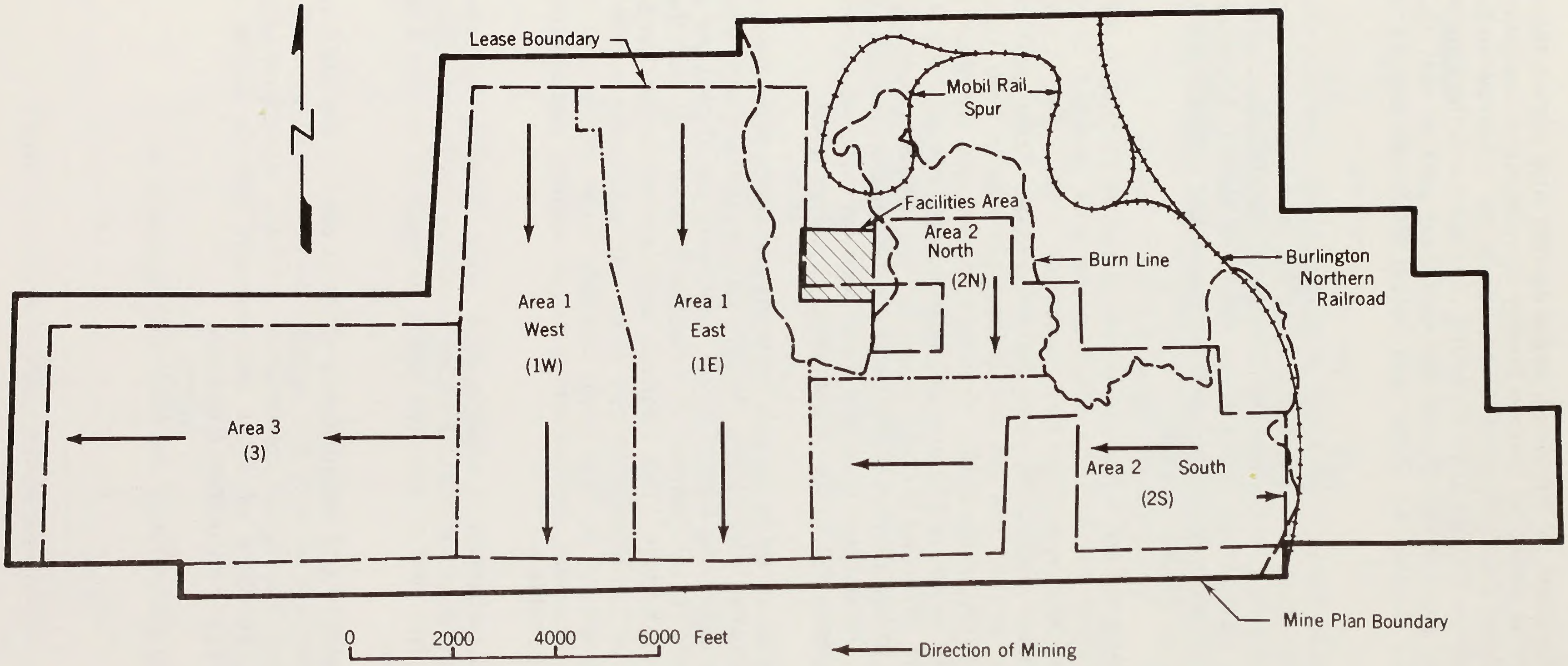

Figure I-2.--Lease and permit areas and direction of mining, Rojo Caballos mine. (Furnished by applicant.)

Table I-1.--Projected coal production, surface disturbance, and employment, Rojo Caballos mine

[Data supplied by applicant]

Year of operation[1]	Coal production (millions of tons)	Area affected (acres)	Overburden removed (millions of cubic yards)	Complete retopsoiling (acres)	Average number unit trains loaded per week	Employment
1------	0	98.81	0	0	0	211
2------	0	146.32	3.79	0	0	287
3------	3.0	83.93	7.89	0	5	189
4------	6.0	90.43	11.46	58.77	10	255
5------	9.0	188.22	16.32	117.54	16	335
6------	9.0	126.01	16.32	0[2]	16	347
7------	11.0	161.18	18.83	76.40	19	347
8------	15.0	157.00	30.18	152.80	26	477
9------	15.0	245.15	38.53	218.91	26	477
10------	15.0	194.49	38.53	89.26	26	477
11------	15.0	194.26	38.53	170.80	26	477
12------	15.0	153.16	39.69	157.02	26	477
13------	15.0	204.82	39.69	90.73	26	477
14------	15.0	186.15	39.69	49.59	26	477
15------	15.0	130.44	39.69	117.91	26	477
16------	15.0	191.09	45.89	99.17	26	487
17------	15.0	196.01	45.89	71.99	26	487
18------	15.0	174.59	45.89	74.19	26	487
19------	15.0	199.86	45.89	195.41	26	487
20------	15.0	140.91	49.40	160.52	26	493
21------	15.0	135.74	49.40	195.04	26	493
22------	15.0	129.15	49.40	193.94	26	493
23------	15.0	118.10	49.40	292.01	26	493
24------	15.0	50.96	49.40	187.69	26	493
25------	15.0	48.09	25.20	291.28	26	493
26------	9.5	0	0	683.04	17	493
Totals	317.5	[3]3,744.87	834.90	[3]3,744.01		

---

[1] Years 1 and 2 comprise the construction phase of operation, years 3-26 the mining phase.

[2] Partial retopsoiling with B and C horizons. The A horizon is added in year 7.

[3] Does not include 66 acres where topsoil would be stockpiled.

PUBLIC COMMENT

It appears to the interdisciplinary team that the environmental costs would not be appreciably lessened based on professional knowledge and a recent report prepared for OSM that summarizes environmental impacts from a coal mine in each of four coal-producing regions of the West (see the end of the discussion of Alternative A in chapter II). Therefore, OSM's recommendation (the proposed Federal action) is approval of the MRP with stipulations. Anyone wishing to comment on this recommendation or the analysis of alternatives should do so within 30 days after release of this EIS. The Assistant Secretary for Energy and Minerals will make a decision on the MRP sometime after the close of the 30-day comment period.

CHAPTER II

ALTERNATIVES

Alternatives to the development of coal resources in the Eastern Powder River Basin have been previously analyzed in the regional analysis portion of the environmental impact statements prepared by the Bureau of Land Management (1974 and 1979a), and in the final EIS on the Federal Coal Management Program (Bureau of Land Management, 1979b).

In analyzing this MRP, OSM has determined that four alternatives merit discussion. Alternative (B) of the draft EIS has become alternative (A), (C) has become alternative (B), and so on. The first alternative (A), approval of the MRP with stipulations to bring the plan into compliance with Federal and State regulations, is the one OSM recommends for approval by the Secretary of the Interior. For convenience, it is called the preferred alternative. Other alternatives are (B) disapproval of the mining and reclamation plan; (C) deferral of action on the mining and reclamation plan; and (D) "no action".

ALTERNATIVE A: The preferred alternative

According to this alternative, Mobil's mining and reclamation plan (Appendix A) would be approved with stipulations (Appendix B) necessary to meet the requirements of SMCRA (PL 95-87), the Permanent Regulatory Program regulations (30 CFR 740 and 211) implementing SMCRA, the State of Wyoming program,[1] the conditions of the lease, and all other applicable Federal laws (such as Federal Land Policy and Management Act, Fish and Wildlife Coordination Act, Endangered Species Act, National Historic Preservation Act, Archeological and Historic Preservation Act, Antiquities Act, Clean Air Act, Clean Water Act). The Assistant Secretary for Energy and Minerals may choose this alternative after review of the analysis.

The socioeconomic stipulation (presented in the draft EIS) requiring Mobil to monitor health service needs and crime, and coöperate with the city and county in finding solutions to these problems, should they arise, has been removed from this alternative. The removal of this stipulation was not done because of any changes in the assessment of potential crime or health care impacts in Campbell County. Rather, the recently adopted permit conditions of the Wyoming Industrial Siting Council (WISC) requires Mobil to participate in a comprehensive socioeconomic monitoring system (Section 7.2 of the Industrial Siting Administration staff review) as part of the Industry Committee of the Campbell County Chamber of Commerce.

Section 7.2 states:

> "The Industry Committee of the Campbell County Chamber of Commerce should be requested to collect and analyze on a recurring basis the necessary socioeconomic data from all existing and prospective industrial developments which will contribute to the population and economic growth in Campbell

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[1] See footnote on page I-1.

> County. The specific parameters to be included in this monitoring program should be jointly agreed to by the City of Gillette, the Campbell County Commissioners, the Campbell County School District No. 1, the Industrial Siting Administration and members of the Industry Committee. As part of the monitoring program, a comprehensive analysis should be made annually of the local community's present and anticipated future socioeconomic conditions. Copies of this analysis should be submitted to participating companies, local governments, the Industrial Siting Administration, and upon request, to other interested parties. Financial support for the monitoring program should be shared in proportion (as measured on the basis of direct impacts on the community) by the Rojo Caballos Mine, all other prospective developments, and by other industrial developments which, while they presently do not fall under the jurisdiction of the Industrial Siting Act, voluntarily join the "program"."

Through a serious commitment by all participants in the comprehensive socioeconomic monitoring, the intent of the special stipulation presented in the draft EIS should be addressed. Especially effective in the socioeconomic monitoring program would be the participation of not only Mobil but other companies in addition to local participation in Campbell County. Therefore, the addition of the WISC permit condition to the mitigations proposed by Mobil should alleviate most of the socioeconomic impacts of the mine.

The following are those stipulations considered to be of primary environment al significance. These stipulations along with those in Appendix B are required to bring the company's proposed MRP into compliance with SMCRA or to mitigate cumulative environmental impacts.

- Monitor the water table monthly during the first phases of mining.
- Prevent contamination of ground water at the minesite by capping, backfilling, or sealing all known boreholes below the coal.
- Provide a projection of the postmining territory including the adjacent mines, to the regulatory authority for approval.[1]
- Provide erosion control measures for stockpiles of deleterious overburden materials.
- Provide a vegetation species seed mixture to the regulatory authority for approval.
- Submit a grazing management plan for reference areas for approval by the regulatory authority.
- Provide a demonstration to the regulatory authority that all reference areas adequately represent premining vegetation.

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[1] As used in the stipulations, "regulatory authority" means the Wyoming Department of Environmental Quality and the Department of Interior, OSM, unless and until the Wyoming permanent program cooperative agreement provides otherwise.

- Assess the wildlife and livestock utility of the relocated stock ponds that would be established to ensure use of best technology currently available.

- Submit to the regulatory authority for approval a plan to mitigate impacts to ferruginous hawk and golden eagle nests.

A complete list of stipulations is provided in Appendix B.

Environmental impacts that would occur if this preferred alternative is approved are described in chapter IV. OSM has contracted for a study, Analysis of Alternative Coal Mining Regions for the Rojo Caballos EIS,[1] to assess the difference between the impacts at the Rojo Caballos Mine and the impacts at similar mines in the Powder River region, the Uinta region, the Green River region, and the San Juan Basin region. Data used in the analysis were obtained from 36 regional and/or site-specific studies prepared over a period of 5 years relating to coal mines in these regions. Those impacts which were determined to be above baseline or normal,[2] including significant impacts, were used from these studies in comparing each of the four regions.

The following information is condensed from this report prepared for OSM, which may give the reader a better perspective of the significance of impacts anticipated at the Rojo Caballos site. The report and information presented herein is generalized. As there are numerous problems inherent in comparing the potential environmental impacts of four coal mining regions (such as surface distrubance and type of mining method), inconsistencies in impact analyses from one region to another are possible.

Impacts for each of the four regions above the baseline or normal level for each of the regions are as follows:

San Juan Basin Region.--Coal mining could have impacts of major significance on paleontology, surface water, vegetation, archaeological and historical resources, highways, demographics and economics, and public services. Impacts of moderate significance could occur on topography and subsurface geology, soils, air quality, ground water, fish and wildlife, social change, and land use.

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[1] Available from OSM, Brooks Towers, 1020 15th Street, Denver, Colorado.

[2] Impacts commonly associated with coal development. An example of a baseline impact on soils would be the complete alteration of soil structure during overburden removal. Baseline impacts on ground water would include changes in local water quality, and replacement of aquifers overlying coal seams with a single aquifer comprised of broken spoil materials. Examples of baseline impacts on socioeconomics would include greater housing occupancy and construction, expanded local worker employment, higher school enrollments, increases in crime, and lack of public facilities and services. Baseline impacts on transportation would include increased railroad and highway traffic, decreased air quality, and more time delays on both a local and regional level.

Unita Region.--Coal mining could have impacts of major significance on topography and subsurface geology, paleontology, surface water, and archaeological resources. Impacts of moderate significance could occur on mineral resources, air quality, ground water, vegetation, fish and wildlife, highways, demographics and economics, social change, and noise.

Green River Region.--Coal mining could have impacts of major significance on paleontology. Impacts of moderate significance could occur on soils, air quality, vegetation, historical resources, utilities, demographics and economics, public services, and recreation.

Powder River Region.--There are no identifiable impacts of major significance in the Powder River region. Coal mining could have impacts of moderate significance on topography, subsurface geology, air quality, ground water, fish and wildlife, historical resources, highways, demographics and economics, and public services.

Potential coal mining impacts have been identified for each of the coal regions. These impacts are summarized along with anticipated impacts of the Rojo Caballos mine in table II-1. Coal mining assumptions used to establish potential impacts are also shown in table II-1.

The impacts in table II-1 are summarized in terms of significance, duration, and extent. Significance is described in terms of major, moderate, and baseline impacts. A major significance designation would include both moderate and baseline impacts. Duration is characterized by short-term, completion of reclamation, and long-term periods. Both long-term and completion of reclamation designations include short-term impacts. Extent of impacts is described in terms of the minesite, adjacent areas, and the region. Impacts on adjacent areas include those occurring at the mine site

ALTERNATIVE B: Disapproval of the mining and reclamation plan

This alternative, to disapprove the MRP, could be chosen if the proposed action would cause significant adverse impacts, i.e., irreparable harm to the environment. If this alternative is chosen, about 317 million tons of coal would not be mined and a yearly average construction force of about 250 and a peak permanent work force of about 477 in 1990 would not be employed at the mine. Of the construction force, a small percent are expected to be local residents. The wages that would be paid to the construction work force in 1981 would be about $4,220,000 and the wages paid to the permanent work force in 1990 would be about $17,084,709 (calculated on an annual salary of $20,000 and using a 6 percent inflation rate). The environmental impacts associated with mining this Federal lease would not occur if this alternative is chosen. The Assistant Secretary for Energy and Minerals could chose this alternative after review of the EIS.

Disapproval of the permit would be necessary if Mobil does not accept the stipulations required to ensure compliance with SMCRA and other Federal and State laws.

Table II-1.--Comparison of Impacts in Coal Mining Regions to the Rojo Caballos Mine

Coal Mining Assumptions	San Juan Basin Region	Uinta Region	Green River Region	Powder River Region	Rojo Caballos Mine (Powder River Basin)
Surface Disturbance (Acres)	9000	1000	4000-TS[2]/9000-DL	4000	3800
Average Coal Seam Thickness (Feet)	12	10	20	50	65
Mining Method	Surface-DL[1]	Underground	Surface-TS & DL	Surface-TS & DL	Surface - TS
Tons Coal Mined (Annual)	7,000,000	3,500,000	5,000,000-TS/ 12,000,000-DL	15,000,000	15,000,000
Estimated Regional Manpower	500	750	500-TS/500-DL	500-TS & DL	477
Local Coal Transportation	Truck	Truck	Railroad	Railroad	Railroad
Impact Categories					
Geology					
Topography & Subsurface					
Geology	MOD/L/MS[2]	MAJ/L/MS	BAS/L/MS	MOD/L/MS	BAS/L/MS
Paleontology	MAJ/L/MS	MAJ/L/MS	MAJ/L/MS	BAS/L/MS	BAS/L/MS
Mineral Resources	BAS/S/MS	MOD/L/MS	BAS/L/MS	BAS/L/MS	BAS/S/MS
Soils	MOD/C/MS	BAS/C/MS	MOD/L/MS	BAS/C/MS	BAS/C/MS
Air Quality	MOD/S/AA	MOD/S/AA	MOD/S/AA	MOD/S/AA	MOD/S/AA
Water Resources					
Ground Water	MOD/C/AA	MOD/L/AA	BAS/C/AA	MOD/C/AA	MOD/C/AA
Surface Water	MAJ/C/RE	MAJ/S/RE	BAS/C/RE	BAS/S/RE	BAS/S/RE
Vegetation	MAJ/L/MS	MOD/L/AA	MOD/L/MS	BAS/C/MS	BAS/C/MS
Fish & Wildlife	MOD/C/AA	MOD/C/AA	BAS/C/AA	MOD/C/AA	MOD/C/AA
Agriculture	MOD/C/AA	BAS/C/AA	BAS/C/AA	BAS/C/AA	BAS/C/AA
Cultural Resources					
Archaeological	MAJ/L/RE	MAJ/L/AA	BAS/L/AA	BAS/L/AA	MOD/L/AA
Historical	MAJ/L/RE	BAS/L/AA	MOD/L/AA	MOD/L/AA	MOD/L/AA
Transportation					
Railroads	BAS/S/RE	BAS/S/RE	BAS/S/RE	BAS/S/RE	BAS/S/RE
Highways	MAJ/C/RE	MOD/S/AA	BAS/S/RE	MOD/S/RE	BAS/S/AA
Utilities	BAS/S/AA	BAS/S/AA	MOD/S/AA	BAS/S/AA	BAS/S/AA
Socioeconomics					
Demographics & Economics	MAJ/S/AA	MOD/S/AA	MOD/S/AA	MOD/S/AA	MOD/S/AA
Public Services	MAJ/S/AA	BAS/S/AA	MOD/S/AA	MOD/S/AA	MOD/S/AA
Recreation	BAS/S/RE	BAS/S/RE	MOD/S/RE	BAS/S/RE	BAS/S/RE
Social Change	MOD/S/AA	MOD/S/AA	BAS/S/AA	BAS/S/AA	BAS/S/AA
Land Use	MOD/C/AA	BAS/C/AA	BAS/C/AA	BAS/C/AA	BAS/C/AA
Noise	BAS/S/AA	MOD/S/AA	BAS/S/AA	BAS/S/AA	BAS/S/AA
Visual Impacts	BAS/C/MS	BAS/C/MS	BAS/C/MS	BAS/C/MS	BAS/C/MS

Explanation: (1) DL - Dragline, TS - Truck & Shovel; (2) Significance: MAJ-Major, MOD-Moderate, BAS-Baseline; Duration: S-Short-term (life of mine), C-Completion of Reclamation, L-Long-term (permanent); Extent: MS-Mine Site, AA-Adjacent Areas, RE-Region.

ALTERNATIVE C: Defer action

The Secretary could choose to delay his decision to approve or to disapprove Mobil's MRP. This option was appropriate for analysis because it has been suggested by local residents that delaying construction and operation of the mine for 2 years or more could enable Gillette to provide adequate or better services for the increased population from this proposed mine (as well as other energy projects in the area).

A comprehensive community services assessment was made for Gillette and Campbell County including an assessment of estimated impacts from the Rojo Caballos mine in 1980 and 1982.[1] This assessment showed that in most service categories, minor additions would be required to provide adequate services (such as one additional policeman in Gillette and two in the County; 0 additional park personnel in the city and one additional park personnel in the County; and 113 additional single-family homes, 47 multi-family homes and 75 mobile homes for the city). Gillette currently needs to upgrade its wastewater treatment facility or to build a new one. Similarly, the city's solid waste landfill is inadequate. Several of these necessary additions have been addressed in the applicant's MRP (see mitigation proposed to assist the community, Appendix A) such that some needed additions due to the mine whether approved in 1980 or 1982 would not cause a burden to the city and County.

The cumulative socioeconomic impacts from energy developments to Gillette and Campbell County (excluding the Rojo Caballos mine) between 1980 and 1982 are significant. The cumulative needs in the above named service categories would be approximately: 6 additional policemen in Gillette and 10 in the county; 6 additional volunteer firemen in the city and 6 additional volunteer firemen in the County; 5 additional park personnel in the city and 3 in the county; 271 additional single-family homes, 113 multi-family homes and 180 mobile homes for the city. As can be seen from the above summarized figures, the Rojo Caballos mine would contribute additionally to the demand for community services in the city and county between 1980 and 1982.

Also, the city of Gillette has already started construction of an additional water supply system, street improvements, and other projects in anticipation of the increased population from energy development, including the Rojo Caballos mine. The city is planning on increased revenues from the influx of people resulting from this and other energy developments to meet the financial obligations of these projects. If the Rojo Caballos mine were delayed for 2 years or more, the present population would have to meet the cost of this construction without help from the anticipated increase in population. Therefore, based on the applicant's assistance to the community and Gillette's public works projects that are underway, the deferral alternative does not seem to enhance the city's and County's capability to handle the growth associated with this mine.

Other physical environmental impacts would be similar to the impacts analyzed in chapter IV except the impacts would be delayed for 2 years or more.

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[1] An unpublished socioeconomic assessment available at the OSM, Brooks Towers, 1020 15th Street, Denver, Colorado.

ALTERNATIVE D: No action

OSM must recommend an action on a mining and reclamation plan because the Federal mineral leasing laws and the existing lease agreement require the Secretary of the Interior to respond to an application to mine and conduct operations on a Federal lease. To our knowledge, Mobil has met all requirements of the lease.

As with Alternative B, if this alternative were chosen, Mobil would not be able to mine the Rojo Caballos lease, employment and income would not accrue in Gillette and Campbell County, and the associated environmental impacts from mining would not occur.

OTHER ALTERNATIVES

Other alternatives that were suggested to OSM are those included in the final environmental impact statement on the Pronghorn Mine (U.S. Geological Survey, 1979). Complete adoption of these alternatives is not appropriate because the Pronghorn EIS was prepared on the applicant's proposal prior to any modifications to that proposal to bring it into compliance with SMCRA. In addition, Mobil has included socioeconomic mitigation measures to assist the community in its Rojo Caballos MRP submitted to OSM. The other alternatives in the Pronghorn EIS to be addressed include:

a. Cancel the lease.

b. Exchange the lease.

c. Suspend operations.

d. Federal acquisition of leased rights.

e. Restrict development on the lease.

f. Modification of proposed postmining topography to ensure continuity of topographic form with surrounding mines.

g. Modification of applicant's proposed soil reclamation practices.

h. Provide scientific access to geologic information at the mine site.

The preparers have addressed each of these alternatives below:

a. The Secretary could seek legislation to cancel the lease. This option has been presented in other decision matrices and not adopted. There is no convincing argument that the Mobil lease should be cancelled. Impacts of exercising this option would be limited to the applicant in terms of eliminating investments made. No additional environmental impacts would occur.

b. The Secretary could offer to exchange the lease for another lease for coal or other minerals. The analysis has not identified any threatened or endangered species or habitat, significant cultural resources, or other critical/unique resources which could be protected by implementation of this alternative.

c. Suspension of operations would be the same as a. above.

d. Federal acquisition of leased rights, since it requires Congressional legislation, is the same as a. above.

e. The analysis has not identified significant environmental impacts that could be lessened by restricting the rate of coal production or the location of coal extraction within the lease. In fact, the analysis indicated that more coal should be obtained from the lease (which the applicant has agreed to).

f. A stipulation has been included in alternative A which requires the postmining topography proposed for the Rojo Caballos mine to be consistent with the proposed postmining topography for the Cordero and Belle Ayr mines along the common lease boundaries.

g. No changes to soil treatments were identified other than those required as special stipulated requirements for treatment of deleterious material stockpiles. The applicant plans to handle such materials selectively to avoid adverse effects on vegetation and, to the degree possible, ground water quality. Soils are to be placed in two lifts.

h. Provision of access to the minesite for geologic information can be required by the regulatory authority. No comments have been received to indicate that such an alternative should be considered.

CHAPTER III

DESCRIPTION OF THE AFFECTED ENVIRONMENT

The Rojo Caballos mine area is in Campbell County, northeastern Wyoming, about 17 miles southeast of Gillette, in an area that is typical of the semiarid great plains of the West. Additional information on the area is contained in previous environmental impact statements (U.S. Geological Survey, 1975, 1976, 1979, and U.S. Bureau of Land Management, 1974 and 1979a).

TOPOGRAPHY

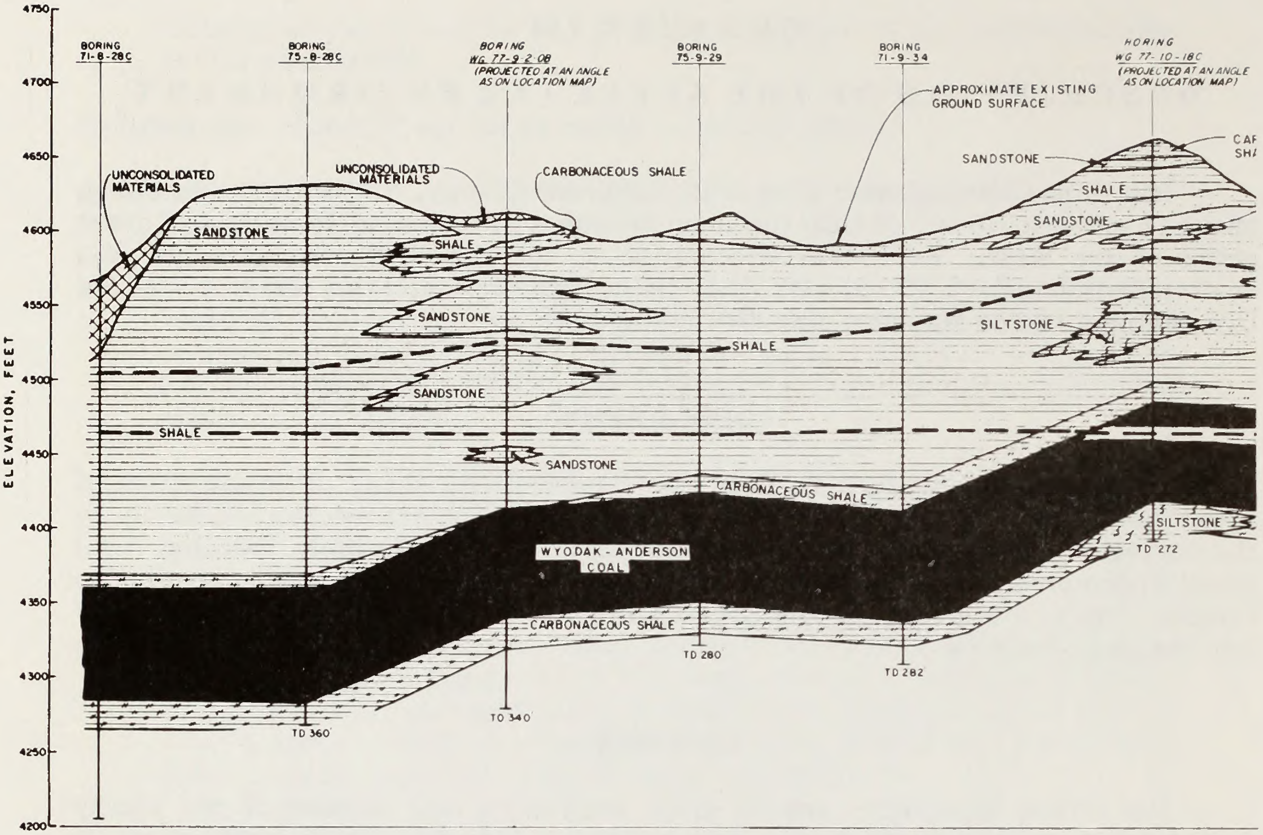
Located on the eastern flank of the Powder River Basin at an elevation of about 4,500 feet, the mine area consists of gently rolling terrain sloping gently to the northeast. Maximum relief in the mine area is about 250 feet. (See fig. A-4.) Small ephemeral drainages head within the mine area and flow northward into Caballo Creek, a tributary of the Belle Fourche River, and southeastward directly into the Belle Fourche River.

GEOLOGY

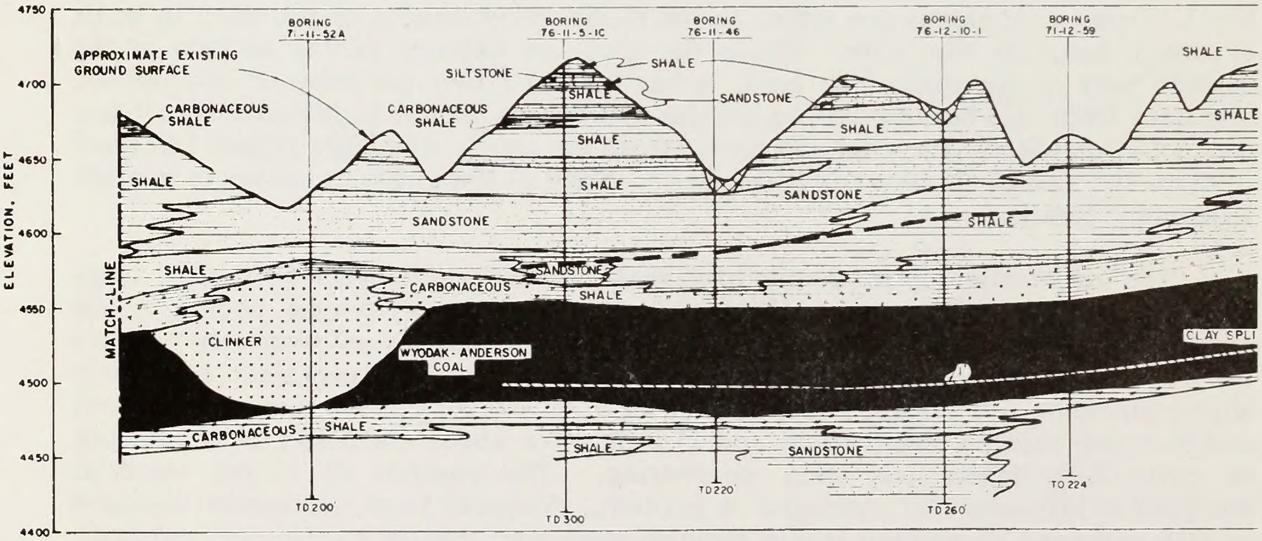
The rolling topography results from weathering and erosion of the poorly consolidated clay, shale, siltstone, and sandstone of the Wasatch Formation, which underlies the region. These beds, typically 150 feet thick and locally as much as 310 feet thick, form the overburden covering the Wyodak-Anderson coal seam, which is about 65 feet thick in the area. This is the seam that would be mined (fig. III-1). Other coal seams are either too thin and discontinuous or too deep to be of economic value at this time. Where the coal was exposed at the surface in the eastern part of the mine plan area, it has burned either partially or completely. The heat from this burning has baked the overburden into a highly oxidized, fused rock called clinker. The coal and other strata dip gently westward (about 1 degree) towards the axis of the Powder River Basin. None of the strata is known to contain significant fossils.

The overburden is predominantly shale and siltstone with lenticular sandstones. Lateral gradation of shale and siltstone into sandstone bodies makes correlation of units difficult. However, a carbonaceous shale commonly overlies the coal. Two types of deleterious overburden occur: 1) fine-grained sediments with equivalent soil textures of silty clay or clay, which restrict root development and decrease rainfall infiltration; and 2) sediments whose chemistry is deleterious or potentially deleterious upon weathering. The percent of clayey material analyzed in 1976 and 1977 averaged 36 percent. Analyses from overburden sampled in 1979 averaged 75 percent (these samples were analyzed by a different method). This large variation in the estimated proportion of problem clays in the overburden suggests that much of the overburden material probably is marginal to questionable for use as subsoil, falling on the boundary between silt and clay sized particles, and it would be difficult to segregate and special handle overburden with unfavorable textural characteristics.

Save for material from two cores, chemically deleterious sediments consist of materials with high salinity (electrical conductivity greater than 8.0 millimhos



SECTION A-A (LOOKING NORTH)



SECTION A-A CONT'D. (LOOKING NORTH)

Figure III-1.--Geologic section through Rojo Caballos minesite. (Furnished by applicant.)

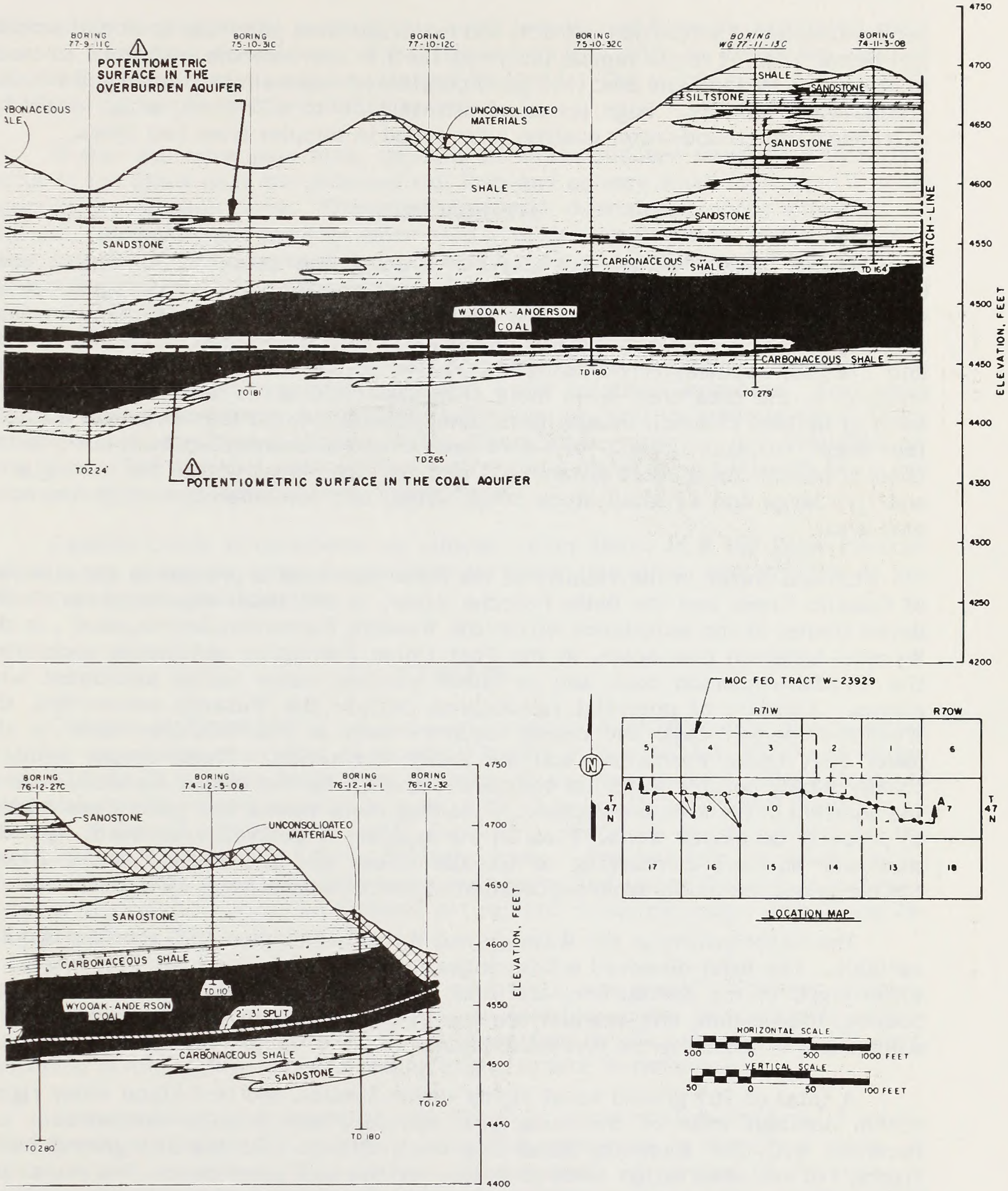


Figure III-1.--Geologic section through Rojo Caballos minesite.

per centimeter of saturation extract) and materials with potential or actual acidity (pH below 5.5). A single sample (60 to 65 feet) in one borehole contained amounts of arsenic (3.14 ppm) and zinc (104 ppm) considered deleterious to plant growth and ground-water quality. High levels of nitrate (110 to 675 ppm), which would be detrimental to ground-water quality, were found in samples from two cores.

HYDROLOGY

Runoff in the ephemeral streams draining the proposed mine-plan area originates within the area except for about 1/2 square mile of watershed located west of the area that drains into the western part of the mine area. The drainage consists of 5 small, essentially parallel, northflowing tributaries of Caballo Creek, and 2 small, southeasterly-flowing tributaries of the Belle Fourche River. All streams in the area that drain more than about 150 acres have developed some form of defined channel, usually grass-lined, about 3 to 10 feet wide and 0.5 to 2 feet deep. Occasionally a 2- to 4-foot deep erosional channel has been cut into the channel bottom for a short distance. There are two playas within the mining area and five large and 13 small stock ponds within and immediately outside the mine plan area.

Ground water in the vicinity of the mine plan area is present in the alluvium of Caballo Creek and the Belle Fourche River, in the small alluvial areas of the draws onsite, in the sandstones within the Wasatch Formation (overburden) , in the Wyodak-Anderson coal seam, in the Fort Union Formation sandstones underlying the Wyodak-Anderson coal, and as minor perched water tables associated with playas. Aquifers of potential significance include the Wasatch overburden, the Wyodak-Anderson coal, and deeper aquifers such as the "500-foot sand" in the lower Fort Union Formation, and the Lance Formation. These deeper aquifers usually supply potable water for the mines. Except for the deeper aquifers, none of the aquifers in the area are capable of yielding more than a few gallons per minute to properly developed wells. Flow in the aquifers is generally eastward, with the shallower aquifers discharging to Caballo Creek and the Belle Fourche River. Recharge occurs mainly from percolation of precipitation (King, 1974).

The water quality in the Wasatch and Wyodak-Anderson coal aquifers is quite variable. The total dissolved solids ranges from 683 milligrams per liter (mg/L) to 2,690 mg/L in the overburden, and from 622 mg/L to 1,090 mg/L in the coal. Sodium, magnesium, and calcium are the dominant cations in both aquifers, with sulfate and bicarbonate the dominant anions.

A total of 203 ground water rights within 3 miles, and 16 surface water rights within one-half mile of the mine plan boundary and 3 miles downstream are recorded with the Wyoming State Engineer's Office. Of the 203 ground-water rights, 120 are observation wells installed for this and other mines. The remaining 83 wells have an estimated total yield of approximately 4,020 gallons per minute and are used for surface mine-related activities, fire protection, and ranch-related activities. The 16 surface water rights in the area contain a total volume of 1,004.31 acre feet of surface water and are used for livestock, ranch-related activities, fish and wildlife, and sedimentation ponds.

Within the mine plan area there are three surface water rights with a total volume of 40.08 acre-feet that are used for storing water for livestock use and five ground water rights with an estimated yield of 469 gallons per minute. Four of these wells are reportedly pumped into stock ponds, and have an estimated total yield of 19 gallons per minute. The fifth water right, with an estimated yield of about 450 gallons per minute, is retained by Mobil. The water from this right is scheduled for use in the mine facilities area.

Within the mine plan area, deposits of unconsolidated streamlaid materials occur in Les Draw near the proposed rail loop and as very small (less than 1 acre) deposits in Clabaugh Draw. These deposits occur downstream about a mile to the channel, floodplain, and terraces associated with Caballo Creek (near the Belle Ayr Mine property). These areas associated with Les Draw and Clabaugh Draw are used for grazing but are not considered "developed" since they have not been managed to take advantage of vegetation for grazing. The channel and terraces along Les Draw have been used for dry land farming and growing crested wheatgrass for grazing. However, flood irrigation has not been conducted and the drainage area (1.45 mi^2) is too small to provide sufficient water for flood irrigation. Test wells indicate that ground water is too deep (more than 14 feet) for subirrigation. These areas are not considered alluvial valley floors since water is not available for irrigation. The areas of unconsolidated streamlaid material in Clabaugh Draw are too small to be considered alluvial valley floors.

Caballo Creek is considered an alluvial valley floor, as is the Belle Fourche River, since adequate water is available for flood irrigation, and to some as yet undefined degree, subirrigation.

CLIMATE

Climate of the region is semiarid and windy. Average annual precipitation (rainfall plus water equivalent of snowfall) is 15.4 inches (NOAA, 1976) and ranges from 10.3 to 22.3 inches (data from Gillette 2E weather station). The calculated potential annual evapotranspiration rate of 23.49 inches (NOAA, 1965) results in an average moisture deficit of 8 inches per year. Some 40 to 50 percent of the precipitation falls during April through June. Precipitation is least during November through February; snowpacks are scanty and spring flooding is minimal. Summer thunderstorms can be intense, but rainfall rarely exceeds 1 inch in any 24-hour period.

Diurnal and annual temperature variations are great. Summer daytime temperatures typically reach the eighties and nineties; winter temperatures seldom rise above freezing. The growing season (frost-free days) averages about 125 days, beginning in mid to late May and ending in mid to late September.

Average annual windspeed in the region is moderately high (8 to 12 mi/h). Wind speeds are highest during winter and spring, with gusts to 40 mi/h or more. In winter, winds are west-northwesterly to northwesterly 40 percent of the time. In summer, air movement is more random, and southeasterly to south-southwesterly winds occur 25 percent of the time (NOAA, 1965).

AIR QUALITY

Air quality is generally good. The mine area is in the Powder River Basin Air Quality Maintenance Area, an area having some air-quality problems with respect to total suspended particulates (TSP) and fugitive dust. Concentrations of gaseous

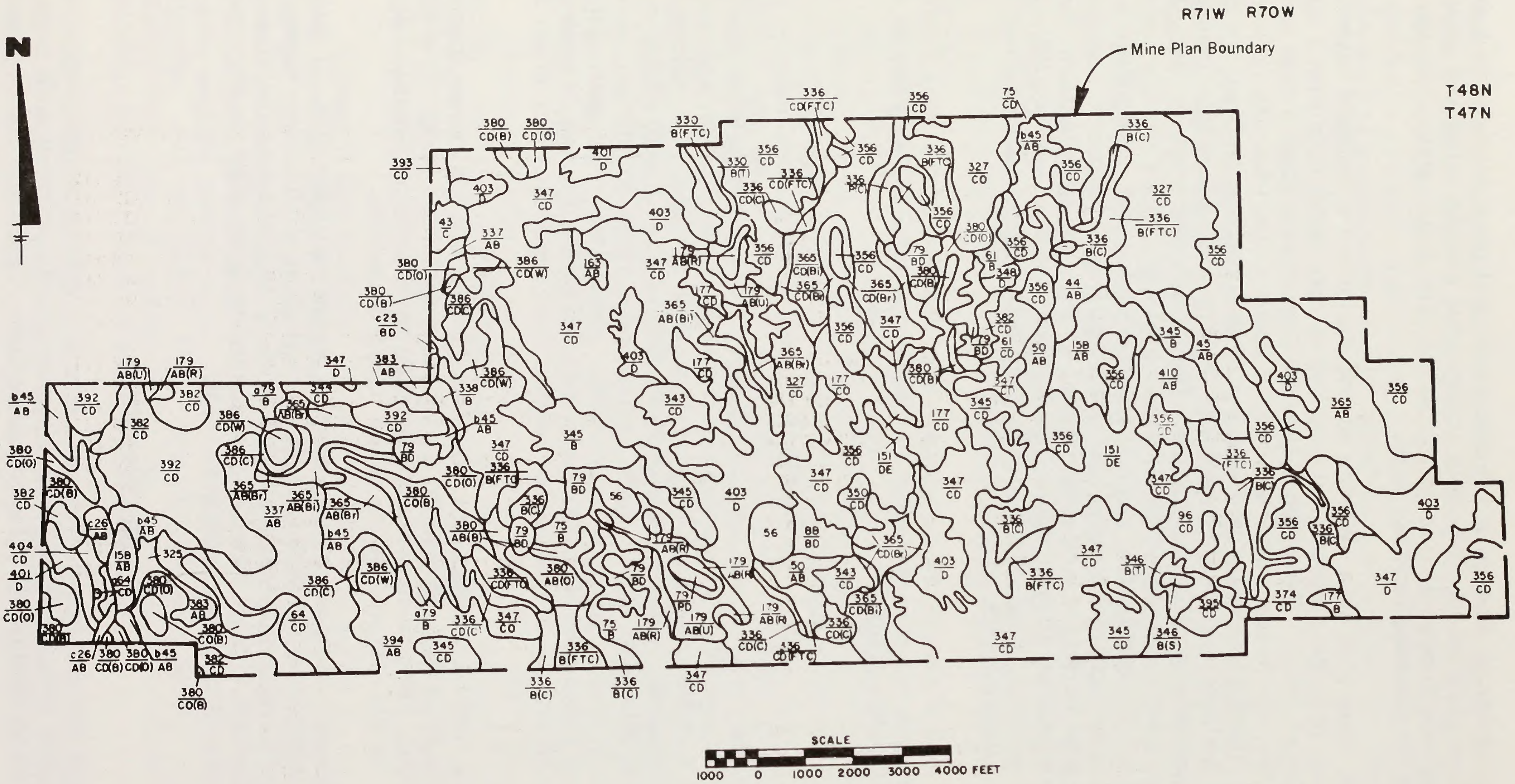


Figure III-2.--Soils within mine-plan boundary, Rojo Caballos mine.
(Furnished by applicant.)

LEGEND FOR SOILS MAP

SYMBOL	SOIL MAPPING UNIT[1]	SYMBOL	SOIL MAPPING UNIT[1]
c25-BD	Louviers clay, 3 to 15 percent slopes	338-B	Briggsdale-Pugsley association, gently sloping
c26-AB	Vona fine sandy loam, 0 to 6 percent slopes	343-CD	Briggsdale-Cushman association, rolling
43-C	Maysdorf fine sandy loam, 6 to 10 percent slopes	344-CD	Briggsdale-Renohill association, rolling
44-AB	Zigweid loam, 0 to 6 percent slopes	345-B	Cushman-Thedalund association, gently sloping
45-AB	Kim clay loam, 0 to 6 percent slopes	345-CD	Cushman-Thedalund association, rolling
b45-AB	Fort Collins loam, 0 to 6 percent slopes	346-B (T)	Thedalund loam, 3 to 6 percent slopes
50-AB	Bidman loam, 0 to 6 percent slopes	346-B (S)	Stoneham loam, 3 to 6 percent slopes
56	Aeric Haplaquepts (playas)	347-CD	Shingle-Thedalund complex, 6 to 30 percent slopes
61-B	Valent fine sand, 3 to 6 percent slopes	347-D	Shingle-Rock outcrop - Samsil complex, 10 to 30 percent slopes
61-CD	Valent fine sand, 6 to 15 percent slopes	348-D	Shingle-Thedalund-Stoneham association
64-CD	Terry fine sandy loam, 6 to 15 percent slopes	350-CD	Renohill-Thedalund association
a64-CD	Dwyer fine sand, 6 to 15 percent slopes	356-CD	Sear-Wibaux association
75-B	Cushman very fine sandy loam, 3 to 6 percent slopes	365-AB (Bi)	Bidman loam, 0 to 6 percent slopes
75-CD	Cushman very fine sandy loam, 6 to 15 percent slopes	365-AB (Br)	Briggsdale fine sandy loam, 0 to 6 percent slopes
79-BD	Shingle clay loam, 3 to 15 percent slopes	365-CD (Bi)	Bidman loam, 6 to 15 percent slopes
a79-B	Briggsdale fine sandy loam, 3 to 6 percent slopes	365-CD (Br)	Briggsdale fine sandy loam, 6 to 15 percent slopes
88-BD	Worf loam, 3 to 15 percent slopes	374-CD	Pubsley-Decolney association, rolling
96-CD	Thedalund loam, 6 to 15 percent slopes	380-AB (O)	Olney fine sandy loam, 0 to 6 percent slopes
151-DE	Shingle-Rock outcrop complex, 10 to 60 percent slopes	380-AB (B)	Bowbac sandy loam, 0 to 6 percent slopes
158-AB	Kim-Stoneham association, undulating	380-CD (O)	Olney fine sandy loam, 6 to 15 percent slopes
163-AB	Kim-Limon association	380-CD (B)	Bowbac sandy loam, 6 to 15 percent slopes
177-B	Thedalund-Kim association, gently rolling	382-CD	Ustic Torriorthents-Ustic Torripsamments complex
177-CD	Thedalund-Kim association, rolling	383-AB	Briggsdale-Fort Collins association
179-AB (U)	Ulm loam, 0 to 6 percent slopes	386-CD (C)	Cushman loam, 6 to 15 percent slopes
179-AB (R)	Renohill clay loam, 0 to 6 percent slopes	386-CD (W)	Worf loam, 6 to 15 percent slopes
325	Aeric Haplaquepts, saline	392-CD	Decolney-Olney association, rolling
327-CD	Wibaux-Rock outcrop - Shingle association, rolling	393-CD	Renohill-Worfka association, rolling
330-AB (FTC)	Fort Collins loam, 0 to 6 percent slopes	394-AB	Cushman-Bowbac association
330-AB (T)	Thedalund loam, 0 to 6 percent slopes	395-CD	Otero-Nelson-Tassel association, rolling
336-B (FTC)	Fort Collins loam, 3 to 6 percent slopes	401-D	Shingle-Worf complex
336-B (C)	Cushman loam, 3 to 6 percent slopes	403-D	Shingle-Cushman association
336-CD (FTC)	Fort Collins loam, 6 to 15 percent slopes	404-CD	Tassel-Tullock-Vona association
336-CD (C)	Cushman loam, 6 to 15 percent slopes	410-AB	Stoneham-Fort Collins association
337-AB	Fort Collins-Stoneham association		

[1] USDA-SCS Soil Survey of Campbell County, WY (unpublished).

pollutants are well below State and Federal Standards. Table III-1 summarizes the most recent quarterly TSP data currently available in EPA's National Aerometric Data Bank. Site 2 FO1 is located near downtown Gillette, site 2 FO3 is about 22 miles southwest of the Rojo Caballos site.

Table III-1.--Total suspended particulates ($\mu g/m^3$)

(Source: EPA National Aerometric Data Bank Quarterly Frequency Distribution file. Sites operated and data made available to EPA by the Wyoming Department of Environmental Quality, Air Quality Division)

Site code and location	Year/quarter	24-hour maximum	Second highest 24-hour maximum	Quarterly geometric mean
2 FO1, Campbell County School District Administration	1978-03	86	74	59
	1978-04	176	101	47
	1979-01	88	40	25
Building	1979-02	114	101	43
2 FO3, 2 miles north of Reno Junction	1978-01	30	22	11
	1978-02	80	29	21
	1978-03	24	23	--

Suspended particulates measured onsite between December 1975 and June 1976 ranged from 3.0 to 54.0 micrograms per cubic meter ($\mu g/m^3$). The State and Federal annual geometric standard of 60 $\mu g/m^3$ and the 24-hour standard of 150 $\mu g/m^3$ were not exceeded during the sampling period. Additional regional analysis of particulate data in relation to dispersion modeling for the lease area is discussed in Mobil's mining and reclamation plan.

Particulate levels near existing mining activities are generally higher than the background concentrations owing to the fugitive dust generated by the mining operations.

SOILS

Soils within the proposed mine area (fig. III-2) are varied, consisting of shallow to deep, sandy to clayey, calcareous materials from interbedded sedimentary strata and side-slope deposits. In the more developed soils there are often calcic horizons. The soils are neutral to slightly alkaline and for the most part, are low in the nutrients needed for plant growth.

Generally, suitable soil is available to provide 2 to 5 feet of topsoil (plant-growth medium) for use in reclamation. Only four mapping units within the area (56, 325, 327CD, and 356CD) are unsuitable for use as topsoil due to high clay content, high salinity, or a combination of very shallow bedrock and steep slopes. Topsoil material may require fertilizer amendments to provide essential nutrients.

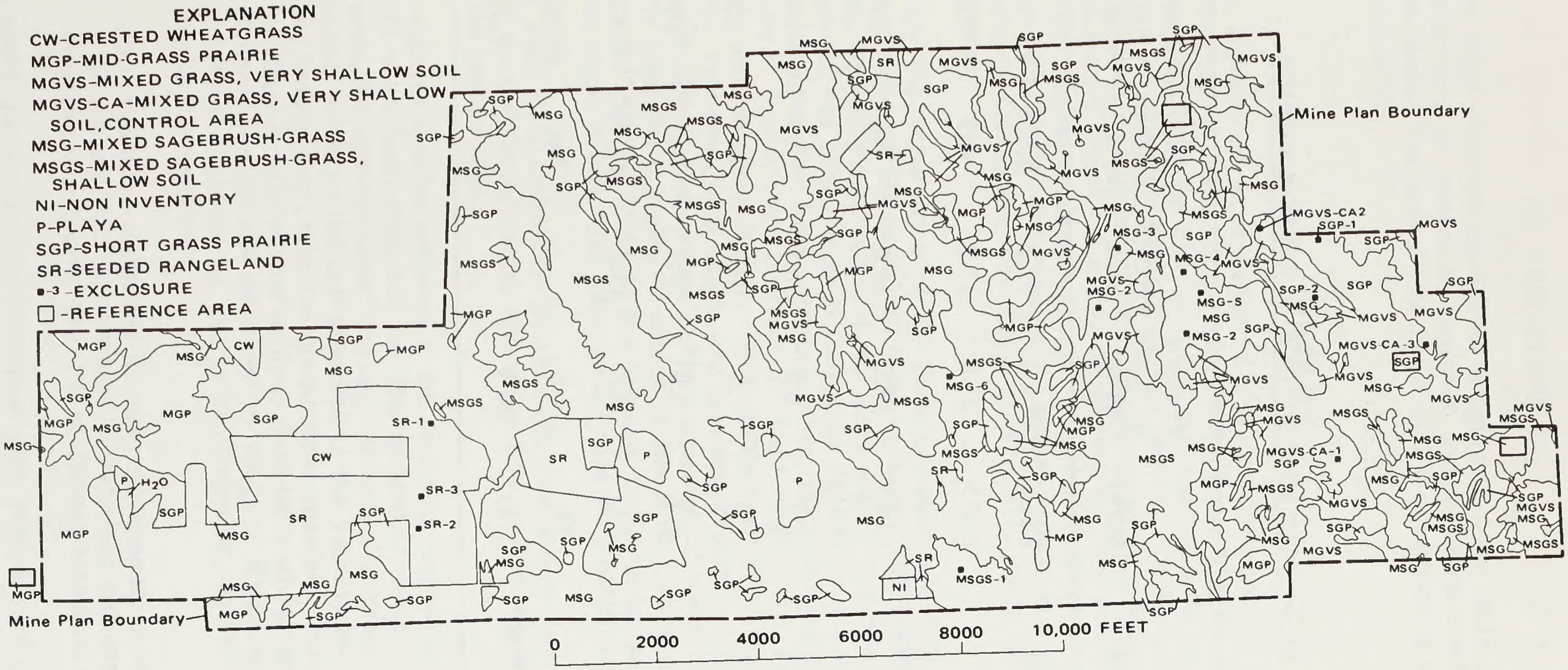


Figure III-3.--Vegetation within mine-plan boundary, Rojo Caballos mine. (Furnished by applicant.)

Table III-2.--Vegetation on the Rojo Caballos minesite

Vegetative community	Acres	Percent of study area	Percent cover	Production (pounds per acre)	Animal unit months	No. of cattle it could support
Mixed sagebrush-grass	2,062	35.6	21.7	1,086	724	58
Short grass prairie	1,375	23.8	15.2	495	385	31
Mixed sagebrush-grass, shallow soil	1,043	18.0	14.6	546	209	17
Mixed grass, very shallow soil	517	8.9	18.7	589	150	12
Seeded rangeland	454	7.8	10.7	615	204	16
Mid-grass prairie	219	3.8	17.1	715	109	9
Playa	43	0.7	23.7	1,091	42	3
Crested wheatgrass	74	1.3		Not	sampled	
Totals	5,787	99.9			1,823	146

VEGETATION

The eight plant communities shown in figure III-3 are summarized in table III-2. The mine-plan area is covered by sagebush and grassland communities, some of which are man made. The overall condition of the rangeland is fair to good, with moderate productivity.

WILDLIFE

No rare, threatened, or endangered species are known to inhabit the mine-plan area. Two bald eagles (endangered, U.S. Fish and Wildlife Service, 1977) were observed flying over the mine-plan area and may use the area as hunting grounds. No suitable winter roosting habitat occurs onsite. Other endangered species (USFWS) with ranges encompassing the mine-plan area include the peregrine falcon and the black-footed ferret. Surveys completed in 1979 and 1980 by Mobil (see MRP for details) showed these species are not present on the mine plan area. The purple martin, burrowing owl, and milk snake, which are considered rare in Wyoming (Wyoming Game and Fish Department, 1977), have ranges encompassing the mine plan area.

To clarify the importance of the Rojo Caballos minesite as winter hunting habitat for bald eagles, OSM contacted Mike Lockhart, USFWS raptor specialist, at their Sheridan, Wyoming research station. Bald eagles may be expected to be seen flying over any of the coal mines in Campbell County as there is a winter roost about two miles from the Rojo Caballos mine, and bald eagles are a very wide ranging species. Prime food sources for bald eagles are fish kills and duck concentrations around water bodies. No suitable body of water exists on the Rojo Caballos mine. However, bald eagles are also opportunistic feeders and are likely to utilize winter-killed sheep on any of the minesites. It would be impossible to say with certainty what the cumulative effect of the Rojo Caballos mine would be on bald eagle winter hunting habitat, but because these birds range so widely, it is concluded that impacts from this mine would have very little effect.

During field data collection in 1979-80, two active ferruginous hawk nests were located on the permit area, and an active golden eagle nest was located adjacent to the permit area.

Three wildlife species believed to be declining regionally (National Audubon Society, 1979) have been observed on the mine-plan area. These include the Swainson's hawk, ferruginous hawk, and sage grouse. Other species included on the National Audubon Society's list and observed in the vicinity include the black tern, the red-headed woodpecker, and the grasshopper sparrow. However, the Wyoming Game and Fish Department stated in their comments of November 24, 1980, that the red-headed woodpecker has expanded its range in Wyoming, the sage grouse is stable except where impacted by energy development, and the two hawk species fluctuate annually in population.

No aquatic organisms classified as rare, threatened, or endangered (USFWS, 1977; Wyoming Game and Fish Department, 1977) were observed in the mine-plan area or are known to occur there. There is no fishery resource.

Three game species use the mine-plan area year around (pronghorn antelope, mule deer, and sage grouse), and several species of waterfowl frequent the area during migration seasons. The mine-plan area and the surrounding area is considered important as a winter concentration range for antelope. A sage grouse lek (breeding ground) is located in section 11.

Pronghorn densities ranged from 18 to 31 per square mile during July 1975 to April 1976. Most of the animals observed in July were in small groups. During the winter, the herds were much larger. Mule deer were observed in the more rugged areas. From 21 to 25 deer were observed during the winter and from 0 to 12 the rest of the time.

More recent data, collected by Mobil from September 1979 to September 1980 indicate that the densities of pronghorn antelope and mule deer have decreased since the studies done in 1975 and 1976. Aerial surveys done over the four seasons of the 1979-80 period showed that pronghorn density on the permit area varied between 6.2 per square mile (fall, 1979) and 2.6 per square mile (summer, 1980). Winter (February 1980) density was estimated at 3.8 pronghorn per square mile. A road census on the permit area (January 26 to February 2, 1980) estimated a density of 4.9 pronghorn per square mile, with 88.7 percent of the animals observed in mixed sagebrush-grass; 2.2 percent in mixed grass; 7.4 percent in shortgrass prairie; and 1.7 percent in seeded rangeland.

Similarly, mule deer observations were much lower than the earlier studies. There was only one mule deer observed on the permit area during the 1979-80 collection periods, although 57 deer were observed surrounding the permit area during the winter survey.

SOCIOECONOMICS

The population of Campbell County was about 20,800 people in 1978 and is expected to reach about 52,100 people by 1990. The 1978 population of Gillette was about 10,900 people and is expected to reach 30,200 by 1990. These are the most probable projections based on existing and likely future energy development excluding the Rojo Caballos mine (data from Wyoming Research Corporation, 1980).

Campbell County and Gillette are typical of sparsely populated rural areas in the Western United States that are growing rapidly due to energy development. Most municipal services are either growing, or need to grow, in response to increasing population. The Sheriff's Department employs 35 people, the Police Department 47. Fire protection is both city-county and volunteer. Municipal water supply is from 24 wells capable of producing 3.6 million gallons per day (mgd). Based on a standard of 285 gallons per capita daily (gpcd) peak demand, these wells will serve a population of only 12,600. The actual amount of water available to the city, however, depends upon the number of wells in service and their condition, as evidenced by the need to ration water in Gillette during the summer of 1979. Water hardness continues to be a problem, and varies with the depth and source of water. The present mineral content does not meet the water quality standards recommended by the U.S. Public Health Service. Additional well development will supply 8.4 mgd by late 1981. This better quality water should be adequate to meet the projected needs of Gillette through 1990.

The city's sewage-collection system currently is adequate. However, sewage-treatment facilities are designed for 1.2 mgd and are inadequate to meet the peak demand of 3.1 mgd estimated for 1980. A plant proposed for construction by 1983 would have a capacity adequate for 35,000 people. The present sanitary landfill (80 acres) is inadequate, and the city is considering expansion and improvements. The city and County street and highway departments employ 19 and 50 employees, respectively; both departments are growing. Recreation facilities are adequate to meet present demands in both the city and the County (Wyoming Research Corp., written communication, 1980).

Medical facilities in the County consist of a 31-bed hospital, which is being supplanted by a 59-bed hospital in 1980 to meet the County's needs. Twenty-seven physicians serve the County, which is barely adequate to serve the present population. More physicians are needed to provide a broad range of medical services. The Gillette branch of the Northern Wyoming Health Center has a staff of six full-time professionals and one psychiatrist available on a consulting basis.

The Gillette office of the Wyoming Division of Public Assistance and Social Services is primarily oriented towards short-term assistance caused by temporary unemployment or domestic stress. This condition exists because of the large number of job opportunities provided in Campbell County. In recent years, the welfare needs of children have increased considerably. Also, senior citizens and day care program efforts are strained and will need improvements in service to keep pace with population growth.

Library facilities in Campbell County include a main library and two branch libraries. The present system is operating at capacity and a new library is under consideration. Future population growth will necessitate expansion of the library facilities in terms of space, number of volumes, and staff.

The assessed valuation of Campbell County was slightly over $70 million in 1969, almost tripled to over $200 million in 1974, and tripled again to almost $600 million in 1979. The majority of this increase has been the result of energy development. Wyoming statutes limit the counties to a maximum 12-mill levy per year for capital and operating costs and a general obligation debt equal to 2 percent of assessed valuation. Thus Campbell County can generate over $7 million per year in property taxes and the general obligation debt limit is almost $12 million. With these resources, Campbell County is expected to be able to deliver all services at the desired level.

Projections indicate a budget deficit for Gillette through 1985. The projected deficits for Gillette are the result of two major factors: 1) the capital facility expenditures necessary because of population growth, and 2) the fact that coal mines in Campbell County only marginally increase the assessed valuation of Gillette.

Campbell County School District No. 1 financial resources resemble those of the County because the district includes the entire County. The massive increases in assessed valuation which have resulted from energy development have allowed the school district to improve services and facilities.

There has been a steady increasing demand for housing in Gillette and Campbell County since the late 1960's. The housing boom was started by the increases in oil and gas exploration and production, and has been maintained by the more recent coal developments in the County.

Data indicate that construction of single- and multi-family units lagged behind demand in 1975 and 1977. Much of the housing demand from 1970 to 1977 was met by mobile homes. The proportions of single- and multi-family dwellings, which are in greater demand, are just now returning to the 1970 levels. During the period from 1970 to 1977 approximately 50 percent of the additional housing available consisted of mobile homes.

The County population is composed of occupational groups typical of western rural areas. These groups include farmers and ranchers, people engaged in professions and businesses, skilled and semiskilled labor, unskilled labor, and retired persons. The latter are considerably more numerous than is typical for the nation as a whole. Each group has variant perceptions concerning coal development and urban growth, as well as impacts associated with this development. Although more pronounced, Campbell County wage and employment trends have paralleled regional and national trends. Agricultural wages and employment have declined while job opportunities and incomes for skilled craftsmen in the mining industry have increased dramatically. (For further details on impacts to population groups refer to an unpublished socioeconomic assessment report available at the OSM, Brooks Towers, Denver, Colorado 80202.

Residents of Campbell County, including Gillette, were surveyed from 1973 to 1976 to determine their attitudes toward: 1) belief in economic opportunities provided by the development, 2) belief about the social effects of mineral development, and 3) concern about protecting the environment. The majority of respondents from Campbell County expect energy developments to provide economic benefits. Campbell County residents have had 10 years of experience with coal extraction projects and there are no data which suggest that the development of another mine will change their beliefs. Furthermore, almost three quarters of the newcomers to Campbell County express positive beliefs in the potential for economic benefits, and over half of the long-term residents expect improved economic opportunities to develop. Over 55 percent of the respondents from Campbell County expressed the belief that adverse social changes accompany energy development, and over 60 percent of the respondents expressed concern about the adverse effects upon the environment caused by energy developments (Wyoming Research Corporation, written communication, 1980).

LAND USE

The area currently is used for stock grazing (about 100 animals in the mine area), wildlife habitat, and a little hunting. Areas immediately north and south are used for strip mining of coal. Drilling for oil, gas, and water has occurred on the minesite. Powerlines, a pipeline, and a telephone line cross the mine area; there are no occupied dwellings. Recreational use (hunting) has been limited by the private ownership of the land.

TRANSPORTATION

Newly relocated County Road T-7, which connects to Wyoming State Highway 59 about 2-1/2 miles to the west, provides direct access to the mine area. Traffic on County Road T-7 is light to moderate. Traffic on State Highway 59 near the mine area is moderate, averaging about 2,100 vehicles per weekday in 1979. This is expected to increase to about 4,850 vehicles in 1990 and the road is being upgraded to carry the additional load. Burlington Northern has recently completed a rail line from Donkey Junction, east of Gillette, south to Orin Junction, east of Douglas. This line passes through the east edge of the permit area. At present, a total of 15 trains a day are operating on this line. Burlington Northern states that they have additional capacity, both on this line and on their main lines (oral communication, Bob Howary of Burlington Northern, December 11, 1980).

Gillette is on Interstate 90, Highway 59, and the Burlington Northern line; surface transportation to the area adequately meets present needs. Air transportation is less satisfactory. Construction at the airport is underway to pave, extend, and strengthen runways to accommodate heavier aircraft. Other needed improvements include navigational aids.

CULTURAL RESOURCES

The following description of the existing environment is based on May 1976 reports prepared by Western Interpretive Services, Inc., Sheridan, Wyoming, for Mobil Oil Company, and the final cultural resources survey report included in the mine plan.

The prehistoric occupation of northeastern Wyoming can be characterized in part by two types of aboriginal sites: camp or habitation sites, and bison kill and butchering sites. An archaeological survey of the Rojo Caballos mine plan area has revealed the presence of two habitation sites and three areas in which stone tools were found (isolated finds). The latter areas do not qualify for site status as no associated artifacts or structural components were found in proximity to these locations. The two habitation sites are described below.

Archeological site 48CA3 (renumbered 48CA95 and changed again to 48CA128 in the Wyoming Site Inventory files) is located along the top of a north-south trending, steep-sided hill and contains seven definite and three probable circular to somewhat rectangular stone alignments arranged within a 400-foot area along the hill ridge. An analysis of comparative archaeological literature suggests that these stone alignments represent "tipi rings," which are defined as a series of slabs or rocks used to secure or hold down a skin lodge cover for a conical dwelling. Further site investigation has revealed nothing in the way of associated artifacts nor the presence of hard-packed floor or habitation level. As a result, all that can be concluded is that the site was occupied for only a short period of time. Additional data retrieval work at 48CA128 was conducted by the University of Wyoming in the summer of 1978. The site was "fully recorded and tested" and deemed to be of "no further archeological value" (written communication, George Ziemens, Wyoming Recreation Commission). OSM verified this recommendation by requiring Mobil Oil Company to submit the site testing report for review.

Archeological site 48CA2 (renumbered 48CA94 and later removed from the Wyoming State Archeologist's files because it was deemed "not a site") located on the side of a gently sloping hill on the western face of a north-south trending valley connecting to Caballo Creek, contains two small piles or concentrations of sandstone slabs in association with an assemblage of six pieces of lithic materials. The stone piles are approximately circular to U-shaped and are exposed above the ground surface. The lithic materials include the fragment of a projectile point, a scraper, and four miscellaneous objects of worked stone. Five of the six artifacts found are made of stone types not common to the area. This suggests that these lithic materials were brought to the site area and subsequently lost or discarded by their users. None of the materials were suitable for site dating or cultural determination. It is conjectured that the site represents the collapsed remains of small enclosed shelters. However, it is not clear if the site was used as a temporary encampment, possibly for game observation, or as comparative archeological literature suggests, as a fasting shelter.

Both habitation sites have been deemed ineligible for inclusion on the National Register of Historic Places by the archeological consultant. This determination has been concurred with by OSM and the Wyoming State Historic Perservation Officer (Appendix D).

A third archeological site (48CA45) was located within the Rojo Caballos mine plan area during a later survey conducted for another company (ARCO), and was not identified in the mining application. Discussions with the Office of the Wyoming State Archeologist's staff have indicated that this site is not considered eligible for listing on the National Register of Historic Places.

The historic occupation of northeastern Wyoming, in the vicinity of the proposed mine plan area, can be characterized by survey expeditions of the 1860's and homesteading during the early 1900's. The 1865 Sawyer's Expedition was designed to survey a feasible wagon route from Sioux City, Iowa, to the junction of the Bozeman Trail and the Powder River, by way of the Niobrara River. By plotting the information contained in the expedition engineer's journals, it appears that the Sawyer Wagon Train passed through the area surrounding, but never through, the proposed mine plan area. Therefore, the Sawyer Wagon Train Fight Site and the Sawyer Wagon Train Seige Site, sites which may be eligible for listing on the National Register of Historic Places, would not be impacted by the mining operation. It appears that the closest the party got to the Mobil Oil Company tract was approximately 2 miles west. It is at this location that the party camped overnight and buried their comrades killed in skirmishes with the Cheyenne. A year later, the Sawyer's Expedition returned to the site to recover the bodies, but in so doing, did not cross the Mobil Oil Company tract.

The area south of Gillette, Wyoming, including the proposed mine plan area, was homesteaded during the middle and late 1910's and into the next decade for the purpose of purchasing dryland farming. Three homestead sites located in the proposed mine plan area and four homestead sites located in the vicinity of the tract have been identified as a result of the historical survey by Western Interpretive Services, Inc. The three homesteads located within the proposed mine plan are described below.

The Norman Curtis Homestead (48CA1) consists of a lime-concrete foundation surrounding an area 12 by 13 feet, and an extensive deposit of surface trash. The original owner received a patent to the tract in 1919. Titleship changed hands several times before Mobil Oil Company purchased it in 1973.

The Lewis Schallers Homestead (48CA8) consists on one side of a sandstone foundation and a very small trash dump located nearby. The original owner's legal representative received a patent to the tract in 1922, and in 1924 the title was passed on to his heirs by court order. Titleship changed hands several times before Mobil Oil Company purchased it.

The Fred Schneider Homestead (site number undesignated) consists of a poorly maintained house built on a lime-concrete foundation and framed with rough lumber. There is physical evidence of other structures on the property. The original owner built the house in 1916 and received a patent for the tract in 1919. Titleship changed hands several times before Mobil Oil Company purchased it in 1972.

Homesteads located in areas adjacent to the proposed mine plan area are in roughly the same condition as the first two sites discussed.

All three homesteads have been deemed not eligible for listing on the National Register of Historic Places by the historical consultant; OSM and the Wyoming Recreation Commission concur with this determination (Appendix D).

During the final survey, which completed the cultural resources inventory on those areas determined to be unsurveyed, two additional sites were located and recorded. Site 48CA517 consists of a small frame building and an associated scatter of historic debris, including discarded machinery parts, milled lumber, and clear glass. The site is not considered to be eligible for listing in the National Register of Historic Places. Site 48CA516 consists of seven stone enclosures. Six of the enclosures are closely spaced while a seventh occurs several meters southwest of the others. No artifacts were associated with the features. However, because of the possible presence of shallowly buried cultural deposits at the site, the company's cultural resources contractor recommended testing the site to determine whether there were subsurface deposits and, thus, assess the site's eligibility. Because the site is located approximately 1/2 mile from any potential disturbance, OSM believes the site should be left intact and untested. Therefore, OSM requested an exemption to the provisions of the Programmatic Memorandum of Agreement from the Advisiory Council on Historic Preservation to permit leaving the eligibility of this site undetermined. The Council concurred with this request (Appendix D).

ESTHETICS

Southeastern Campbell County is a relatively unified landscape with similar features that extend far into the distance. Occasional rock outcrops and small bluffs constitute complementary features. Most, if not all, of the landscape features can be seen at a glance from any one of a number of vantage points. There is little or no sense of boundary restrictions. There are no foreground or middleground objects to substantially block viewing of background objects.

A number of surface coal mines are superimposed on this landscape. The proposed Rojo Caballos mine is adjacent to two active mines (Belle Ayr and Cordero).

NOISE

An approximation of the existing noise environment of the proposed Rojo Caballos minesite was obtained by using data from a similar site 4 miles southeast of Medicine Bow, Wyoming. This was done by taking the baseline levels at Medicine Bow and superimposing the contribution of significant noise sources in the vicinity of the proposed site onto these baseline noise levels. The existing significant noise sources in the vicinity of the Rojo Caballos site are the Belle Ayr mine, the Cordero mine, and Highway 59:

Total sound pressure at the proposed Rojo Caballos minesite

(For a source power level of 130 dBA from the Belle Ayr and Cordero mines)

North boundary (center)	56 dBA
Center of site	52 dBA
South boundary (center)	52 dBA

The Rojo Caballos minesite is essentially an undisturbed natural area. Ambient noise levels are fairly quiet, but are punctuated by occasional short-term noisy interludes from a variety of sources. Apparently few acoustic stimuli occur to disrupt normal wildlife activities, or impair normal wildlife communications. A review of the available baseline data provided in the Rojo Caballos mine plan indicated that a normal variety of wildlife typically indigenous to this habitat type were present. Therefore, the present acoustic environment does not appear to have adversely affected native wildlife species in this area.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the environmental effects of Alternative A--the preferred alternative, which consists of the mining and reclamation plan proposed by Mobil Oil Corporation as modified by stipulations. Each section of this chapter begins with a summary of the anticipated environmental impacts of Alternative A printed in **boldface** type. The conclusions drawn in the summary are documented in the text that follows it and in table IV-1.

The interdisciplinary team has not considered the impacts of the proposed mine in isolation: we have defined its impacts as the difference between the total expected changes in each impacted resource with the mine and existing and proposed development, and the total expected changes in that resource during the same period without the mine. Thus, for example, the impact of the proposed mine on the population of Gillette is measured by the difference between the anticipated population with the mine and the anticipated population without it.

Moreover, the team has discussed impacts in terms of their **significance.** The team considers that Gillette and Campbell County would experience significant cumulative socioeconomic impacts from the existing and proposed developments; the Rojo Caballos mine would contribute to these impacts. (See Socioeconomics section below.) However, the team considers that none of the other resources would experience significant impacts from the Rojo Caballos mine outside the minesite. As bases for that conclusion, we have used criteria set forth by the Council on Environmental Quality (CEQ) (40 CFR 1508.27), and the professional judgement of our resource specialists. After reclamation, all impacts except those related to hydrology, would be insignificant. Recovery of the potentiometric surface of the impacted aquifers may take up to 50 years.

As measured against CEQ's criteria, impacts to the physical and biological environment due to the Rojo Caballos mine would not be significant, because they would not: threaten a violation of legal standards (as for air and water quality); harm rare, threatened, or endangered species; destroy historical or archeological sites listed in or eligible for listing in the National Register of Historic Places; disrupt unique or ecologically critical areas; be highly controversial; be significant in cumulation with impacts from other mines in the area; or present unique or highly uncertain risks. Rather, impacts would be about the same as those of other mines in the area (such impacts are reasonably well known). The Eastern Powder River Regional EIS (U.S. Bureau of Land Management, 1979a), discusses the cumulative impacts of most of the coal mines in the area. However, the Rojo Caballos mine was not included. In the team's judgement, mining would not severely interfere with either the present use or the future use (usability) of the region's or the Nation's resources. Even though the use of some resources--soils and vegetation, for example--would be decreased on the minesite during the 24-year life of the mine and into the reclamation period, resources on nearby lands would adequately, in our judgment, support the region's main land uses (grazing and wildlife habitat) until the minesite once again is able to support those uses at about the same level as it did before mining.

Table IV-1.--Summary of impacts from the preferred alternative

Resource	Nature of impact	Extent	Magnitude[1]	Duration
Topography	Lower land surface an average of 25 feet, with a maximum of 150 feet lower to 40 feet higher.	Minesite.	Major.	Permanent.
		Adjacent areas.	Would be one of 5 contiguous mines undergoing similar changes.	
	Many of the small topographic features would be replaced by a few larger ridges and valleys, with accompanying minor changes in drainage patterns.	Region.	Would be part of an 80-mile, north-south strip of land disturbed by surface mining.	
Geology	The natural stratigraphic sequence would be disrupted on 3,745 acres. The physical properties of the overburden would be altered. About 317 million tons of coal would be removed and used to generate electricity.	Minesite.	Major.	Permanent.
		Adjacent areas.	Negligible.	
		Region.	Negligible.	
Hydrology	Runoff characteristics and sediment yields would change as mining progresses.	Minesite.	Moderate.	Life of mine.
		Adjacent areas.	Minor.	
		Region.	Negligible.	
	Water levels in the Wasatch, Wyodak-Anderson coal, and Fort Union-Lance aquifers would be lowered as much as 20 feet within 3 miles of the mine. Complete recovery could take as much as 50 years after mining ceases.	Minesite.	Moderate.	During life of mine. Diminishing next 50 years.
		Adjacent areas.	Moderate.	
		Region.	Negligible.	
	Quality of ground water in the replaced overburden would decrease.	Minesite.	Moderate.	Permanent.
		Adjacent areas.	Minor to moderate.	
		Region.	Negligible.	
Air quality	TSP and fugitive dust levels would increase, but would be within Federal and State limits.	Minesite.	Moderate.	Life of mine.
		Adjacent areas.	Minor.	
		Region.	Negligible.	
	Increase gaseous emissions.	Minesite.	Minor.	Life of mine.
		Adjacent areas.	Negligible.	
		Region.	Negligible.	
Soils	Progressive removal and replacement of topsoil on 3,745 acres. Alteration of the soils would result in the formation of new soils with different properties. Productivity may be less. Postmining productivity would be similar to premining conditions.	Minesite.	Major.	Some changes may be permanent, but the postmining land use would not be affected.
		Adjacent areas.	Negligible.	
		Region.	Negligible.	
Vegetation	Progressive loss of vegetation on 3,811 acres, replaced by vegetation with less total diversity. This would not affect productivity after reclamation is complete.	Minesite.	Major.	Loss of productivity could last 40 years after the start of reclamation on the affected area.
		Adjacent areas.	Minor.	
		Region.	Negligible.	
Wildlife	Progressive loss of 3,811 acres of wildlife habitat would temporarily displace some animals, particularly big game, onto adjacent land.	Minesite.	Major.	Until reclamation is completed.
		Adjacent areas.	Moderate.	
		Region.	Minor.	

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[1] See end of table for explanation of footnote.

Table IV-1.--Summary of impacts from the preferred alternative--Continued

Resource	Nature of impact	Extent	Magnitude[1]	Duration
Wildlife--Continued	Destruction and replacement of a sage grouse lek.	Minesite.	Moderate.	Life of mine.
		Adjacent areas.	Minor.	
		Region.	Minor.	
	Increased road kills hunting, and poaching mortalities.	Minesite.	Minor.	Life of mine.
		Adjacent areas.	Minor.	
		Region.	Minor.	
Socio-economics	The population increase of about 3,000 people would increase the demand for public services, housing, schools, and recreation.	Gillette and Campbell County.	Moderate to major initially, becoming minor as service capabilities develop.	Life of mine.
	Increases in crimes against property.	Gillette and Campbell County.	Major to moderate.	Until growth stabilizes.
	Most unskilled, unemployed, and retired people, and many ranchers would experience adverse economic impacts.	Gillette and Campbell County.	Moderate.	Until growth stabilizes.
	Additional strain on Gillette's financial resources.	Gillette.	Moderate.	Until additional sources of income materialize and growth stabilizes.
	About 4 fatalities and 454 lost-time injuries.	Individuals.	Major.	Life of mine.
Land use	A maximum of 1,300 acres would be unavailable for grazing and wildlife habitat during each year.	Minesite.	Major.	Life of mine.
		Adjacent areas.	Moderate.	
		Region.	Minor.	
Transportation	Increased local traffic would cause increased noise, dust, accidents, and use of gasoline.	Minesite and adjacent areas.	Moderate.	Life of mine.
		Gillette.	Moderate.	
		Region.	Negligible.	
	About 26 unit trains per week at full production would cause delays at grade crossings, noise, and accidents.	Minesite.	Negligible.	Life of mine.
		Adjacent areas.	Moderate.	
		Region.	Moderate to major.	
Recreation	Increased demand on developed recreation facilities.	Gillette.	Moderate.	Life of mine.
		Campbell County.	Minor.	
Cultural resources	Destruction of 4 historic and 2 prehistoric sites; possibly other unknown sites would be destroyed. None are eligible for the National Register of Historic Places.	Minesite.	Major.	Permanent.
		Adjacent areas.	Minor.	
		Region.	Minor.	
Esthetics	Intrusion of mine-related activites and buildings would create high contrast with existing landscape. Other mines in area have already caused changes.	Minesite.	Major.	Life of mine.
		Adjacent areas.	Moderate.	
		Region.	Minor.	
Blasting	Increased noise levels, vibrations, and dust.	Minesite.	Moderate.	Life of mine.
		Adjacent areas.	Minor.	
		Region.	Negligible.	

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[1] Magnitude: negligible = at lower levels of detection; minor = detectable but slight; moderate = readily apparent; major = causing great change.

The team then, uses the term **significance** in a very specialized sense. Impacts were evaluated on site-specific, local, and regional levels. When we say that an impact would be insignificant, **we do not mean that the impacted resource has no value, e.g., that cultural resources destroyed during mining have no value in themselves; rather, we mean that a relatively low environmental price would be paid for 317.5 million tons of coal produced in mining the Rojo Caballos leasehold, according to the mining method outlined in the preferred alternative.**

In sum, impacts in the following discussion are considered **insignificant** if they would not:

- threaten violation of legal or ad hoc standards identified by CEQ;
- markedly affect the use or usability of the impacted resources.

Based on professional judgement, the mining already occurring in the area and its associated impacts, the general acceptance of mining impacts by the communities in the area, and the fact that about 83,300 tons of coal would be mined for each acre disturbed, it is concluded that the environmental costs of mining the 317.5 million tons of coal at the Rojo Caballos site could not be lessened appreciably either by mining elsewhere or by using different mining methods (OSM, 1980a).

TOPOGRAPHY

Impacts on the topography would be insignificant because none of the topographic features are unique. Topographic changes during mining would not seriously conflict with regional land uses, and the postmining topography would adequately support anticipated land uses if stipulation 15 is accepted and all operators coordinate efforts. (See Appendix B.) Changes in elevation of the land surface would range from a lowering of 150 feet to a raising of about 40 feet. Overall the land surface would be lowered an average of about 25 feet. The restored land surface would contain fewer, but larger topographic features, and the drainage network would be less dense than now exists. These changes would be made in a 6 square-mile area of a 400-square-mile area that is undergoing similar changes.

Mining would lower the overall land surface 20 to 30 feet on about 3,745 acres of the 5,815-acre mine-plan area: the exact amount would depend on the net expansion (swell) of the excavated and backfilled overburden, which is only approximately known. In preparing the postmining contour map (fig. IV-1), the applicant used a final swell factor for the replaced overburden of 15 percent. This is not in agreement with swell factors reported for other mines in the area, but was recommended by the State. The proposed Rojo Caballos mine would be part of a strip of present and possible future coal mines 80 miles long and about 5 miles wide. Eventually, the land surface over nearly this entire north-south strip could be lowered and altered as described here for the Rojo Caballos mine.

Lowering of the land surface on the minesite would be unevenly distributed, reaching a maximum of 150 feet in the south-central part of the area along the common boundary with the existing Cordero mine. Here, more than a square mile of upland in an area of thick overburden would be lowered at least 60 feet. To the northwest, in sec. 3, the restored topography would include a broad swell rising above the original surface. This rise would trend north, at an angle to the

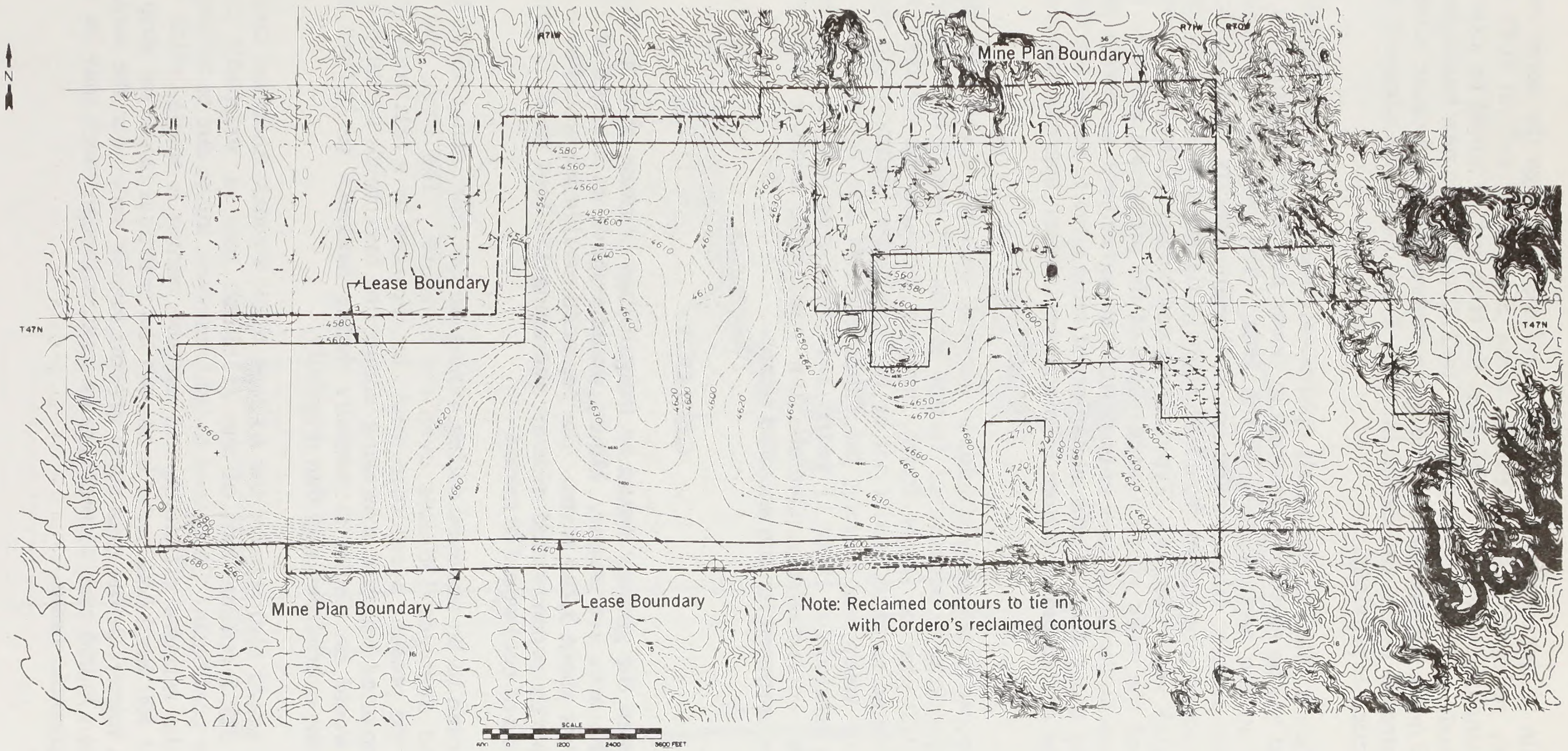

Figure IV-1.--Postmining topography, Rojo Caballos mine. (Furnished by applicant.)

northwest grain of the original topography, and would change the upper reaches of Demott Draw, reducing its catchment basin from 0.91 mi^2 to 0.45 mi^2. In contrast, an unnamed draw now heading in the NE¼ sec. 3 would be extended and its drainage basin increased from 0.09 mi^2 to 2.11 mi^2, with new headwaters in the SE¼ sec. 11, 2 miles farther south. The increased runoff could cause some channel erosion downstream to Caballo Creek (in secs. 3 and 34) unless adequate long-term erosion protection is provided.

More than a third of the small ephemeral channels of the original drainage network would not be restored, resulting in fewer but larger topographic features, most notably in the western half of the area. The loss of a few outcrops of sandstone from steeper slopes would not noticeably modify topographic texture. The steepest postmining slopes would be slightly flatter than those of the original landscape (7H:1V versus 6H:1V). Typical restored slopes (20H:1V), however, would match those of the more gentle upland parts of the premining surface. Mobil and other operators in the area have entered into an agreement to review and adjust the postmining topography of this and adjacent mine sites to better provide surface water drainage and to better ensure erosional equilibrium approximating premining conditions.

The restored topography would, in general, be more erosionally stable than the original topography because of flatter slopes. It would be temporarily less stable for a 100-year or larger storm, however, because the restored landscape, like any reclaimed surface, would not be in topographic (geomorphic) equilibrium. The temporary steep slope along the south edge of the permit area would be vulnerable to erosion for 10 or 11 years until the Cordero mine removes its coal and completes reclamation. Overall, the postmining contour map (fig. IV-1) matches those proposed for the adjacent mines.

GEOLOGY

Changes in the geology would be insignificant because none of the geologic features in the area are unique. Mining would remove an average of 150 feet of overburden over about 3,745 acres. The replaced overburden would be a relatively featureless, partly recompacted mixture averaging 190 feet thick. Approximately 317 million tons of coal would be mined.

Overburden to be removed during mining ranges from about 40 to 300 feet in thickness, and averages 150 feet over the minesite. The shale and sandstone interbeds of the present overburden would be replaced by a relatively featureless, partly recompacted mixture averaging about 190 feet thick because of bulking. Overburden would be displaced laterally during haulback to thicken backfill in areas where the overburden was thin originally.

Mining would also remove the 65-foot thick Wyodak-Anderson coal bed (fig. IV-2)--about 317.5 million tons of the 21 billion tons of strippable coal in the Powder River coal basin. Compared to coal reserves, losses due to mining would be low due to the relative efficiency of surface mining a single, thick seam. A deeper (about 500 feet) coal seam is beyond the practical range for strip mining at this time. A higher, 3-foot coal seam present locally very near the surface might contain about 130,000 tons of recoverable coal, although much may be weathered and not of economic value.

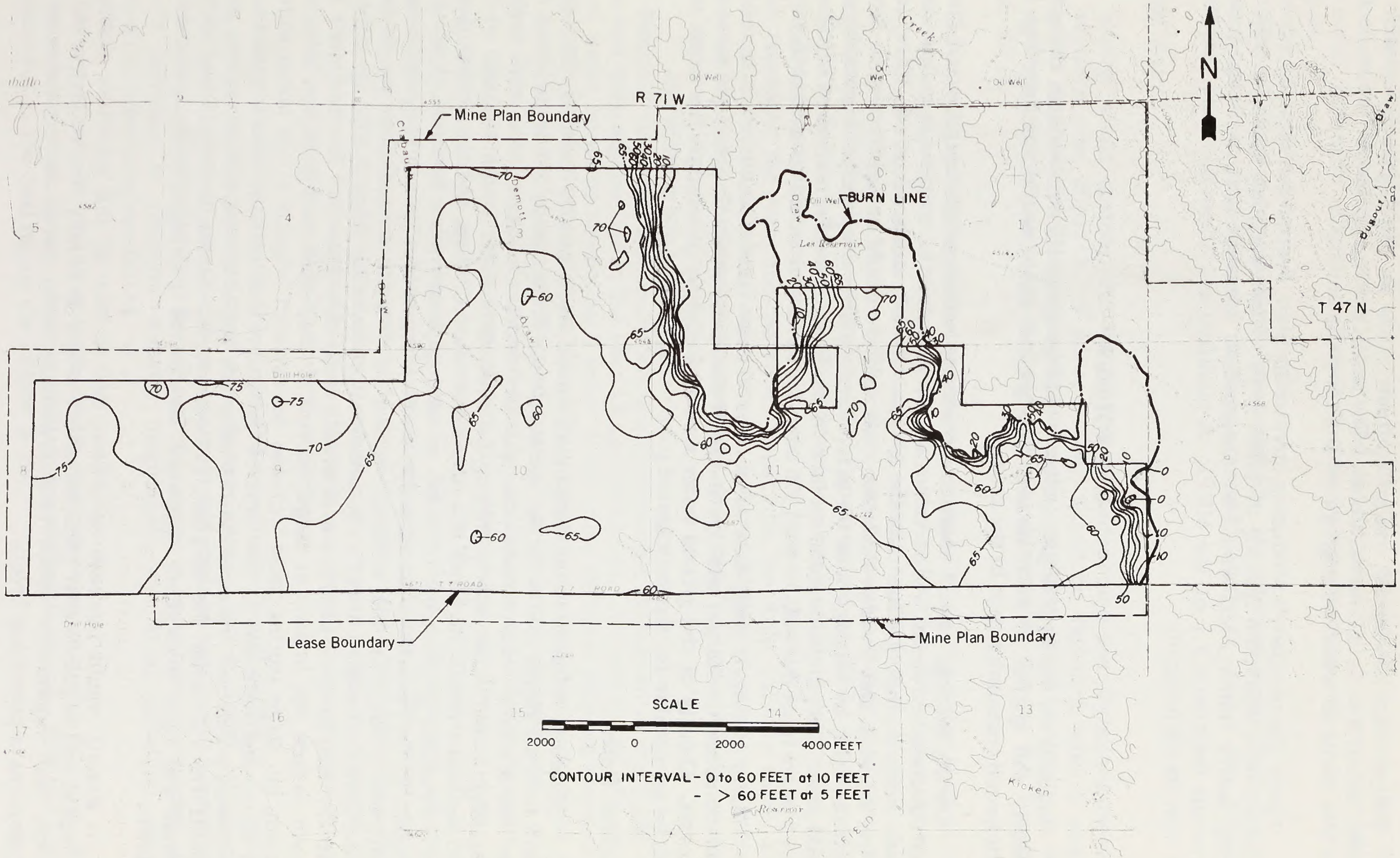

Figure IV-2.--Thickness of the coal, Rojo Caballos mine. (Furnished by applicant.)

Deleterious overburden material, restrictive to plant growth, consists of clayey, saline and acidic constituents. The applicant has stated in the mine plan that this material would be segregated and specially handled.

Under the company's premining monitoring plan, overburden samples would be collected on a minimum spacing of 1,000 feet. These samples would be collected during active mining, and would be analyzed to identify acid- or toxic-forming materials (section 4.2.1 of the MRP). A qualified soil scientist would coordinate the monitoring program.

HYDROLOGY

Impacts on the hydrologic system would be insignificant because changes in quantity and quality of both surface and ground water would not interfere with anticipated postmining uses in the area.

During mining, runoff characteristics and sediment discharge would change over the disturbed areas. All sediment discharged would be trapped in sedimentation ponds unless a storm greater than the 25-year, 24-hour storm occurred. Water levels in the Wasatch and Wyodak-Anderson coal aquifers would be lowered up to 5 miles from the mine by seepage into the pit. Pumping from deep wells for potable water could lower the potentiometric surface in the Fort Union Formation as much as 16 feet 5 miles from the well. About 355 acre-feet of water would be used each year.

After mining, it could take as much as 50 years for the water levels to recover. Surface-water discharge, quality, and sediment yield would be about the same as at present. Quality of the ground water would be slightly poorer but the water would still be acceptable for the anticipated postmining grazing and wildlife use.

Surface Water

Although mining would destroy 12 small stock ponds, Mobil would replace them with six larger ponds during reclamation. These ponds would be sized to fit the watersheds. Continuous changes in runoff characteristics and sediment discharge would occur during mining because of changes in the location of stock and sediment ponds, highwall diversions and other ditches, and the destruction and reconstruction of drainage channels as mining progresses. Because of scour and erosion in the reclaimed areas, sediment discharges could reach high values on the disturbed areas, but the sediment would be trapped in sediment ponds before leaving the mine-plan area. Only sediment produced by large storms (greater than the 10-year, 24-hour storm) would affect areas downstream. The sediment ponds could reduce the impact of larger storms if they were empty at the time of the storm, but large storms could increase downstream impacts if the ponds were full of water and sediment at the time of the storm and the dam failed. However, all sediment ponds are equipped with emergency spillways capable of safely passing runoff from at least the 25-year, 24-hour storm. Seven of the planned sediment ponds will have emergency spillways capable of passing the 100-year, 24-hour storm.

Runoff would increase somewhat due to loss of soil structure during soil removal and replacement. Soil structure would gradually be reconstructed over time, and vegetation would retard surface flows so as to control runoff at approximate premining levels.

The temporary highwall along the south edge of the mine area (near the Cordero mine) would be overly steep and easily eroded. It could discharge substantial sediment to reclaimed areas below during its expected 10-to 11-year lifespan.

After mining and reclamation are complete, the surface-water flow characteristics, quality, and sediment discharge would return to about the present conditions.

Ground Water

Mining would destroy the Wasatch (overburden) and the Wyodak-Anderson coal aquifers over about 3,745 acres. They would be replaced with a single overburden aquifer with hydrologic properties that probably would be similar to the existing Wasatch aquifer except that porosity would be higher than in the Wasatch (Rahn, 1976).

During mining, seepage into the active pits would lower the water level in the overburden aquifer about 10 feet at a distance of 1 mile from the pit; in the coal aquifer, 20 feet at 3 miles. These lowering effects would extend up to 5 miles from the mine. Figures IV-3 and IV-4 show the drawdown during maximum pit drainage in each aquifer as modeled by Mobil and verified by OSM. Model studies indicate that after reclamation, residual drawdown would still be noticeable after 30 years, and complete recovery could take as long as 50 years. These model studies represent the maximum potential impact by the Rojo Caballos mine, and include the cumulative impacts from the Belle Ayr, Caballo, Cordero, and Pronghorn mines (fig. I-1). The contour lines on figs. IV-3 and IV-4 end abruptly because of the way the burn line was modeled.

Pumping for mine use would produce considerable drawdown in the 1,200 to 2,600-feet deep aquifer within the Fort Union Formation. An average of 355 acre-feet of water would be needed each year. If the mine wells are pumped constantly at either 40 gal/min (minimum) or 220 gal/min (maximum), drawdowns would be 15 or 80 feet, respectively, at a distance of 1 mile; 9 or 50 feet at 2 miles; and 3 or 16 feet at 5 miles. These values must be added to the drawdowns produced by wells at the four nearby mines. The cumulative drawdown when all these mines are pumping near capacity would be increased by 30 to 50 feet near each mine. Interference between wells would be greater for the Rojo Caballos and adjacent proposed Pronghorn mine, whose wells would be close together. The lower water levels may necessitate deepening some of the 203 wells in the area. However, OSM regulation 30 CFR 816.54 and the State equivalent require Mobil to replace the water supply where the supply has been affected by contamination, diminution, or interruption resulting from Mobil's surface activities.

Although water quality in the reclaimed overburden would decrease, it would remain acceptable for livestock and wildlife use (about 3,000 to 5,000 milligrams per liter total dissolved solids)--the only current and planned uses in the mine area. Rahn (1976) and Van Voast (1974) have found that water in reclaimed overburden has a small increase in calcium, sulfate, magnesium, and total dissolved solids compared to premining conditions.

Mining of clinker would not affect the ground-water recharge because the aquifers receive little, if any, recharge through the clinker outcrops. This has been demonstrated as the coal below the clinker is dry.

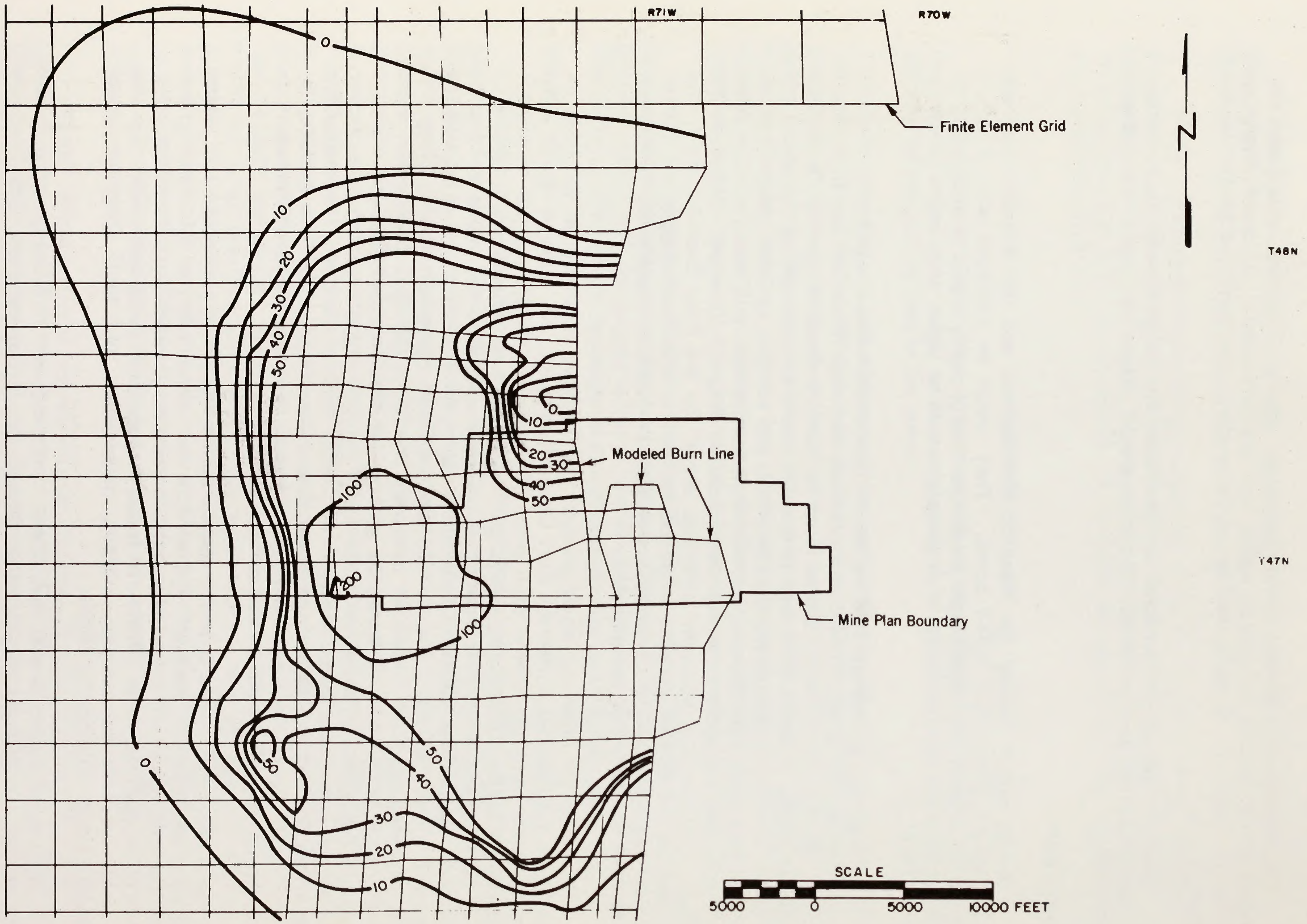

Figure IV-3.--Estimated drawdown in the Wasatch aquifer, Rojo Caballos mine. (Furnished by applicant.)

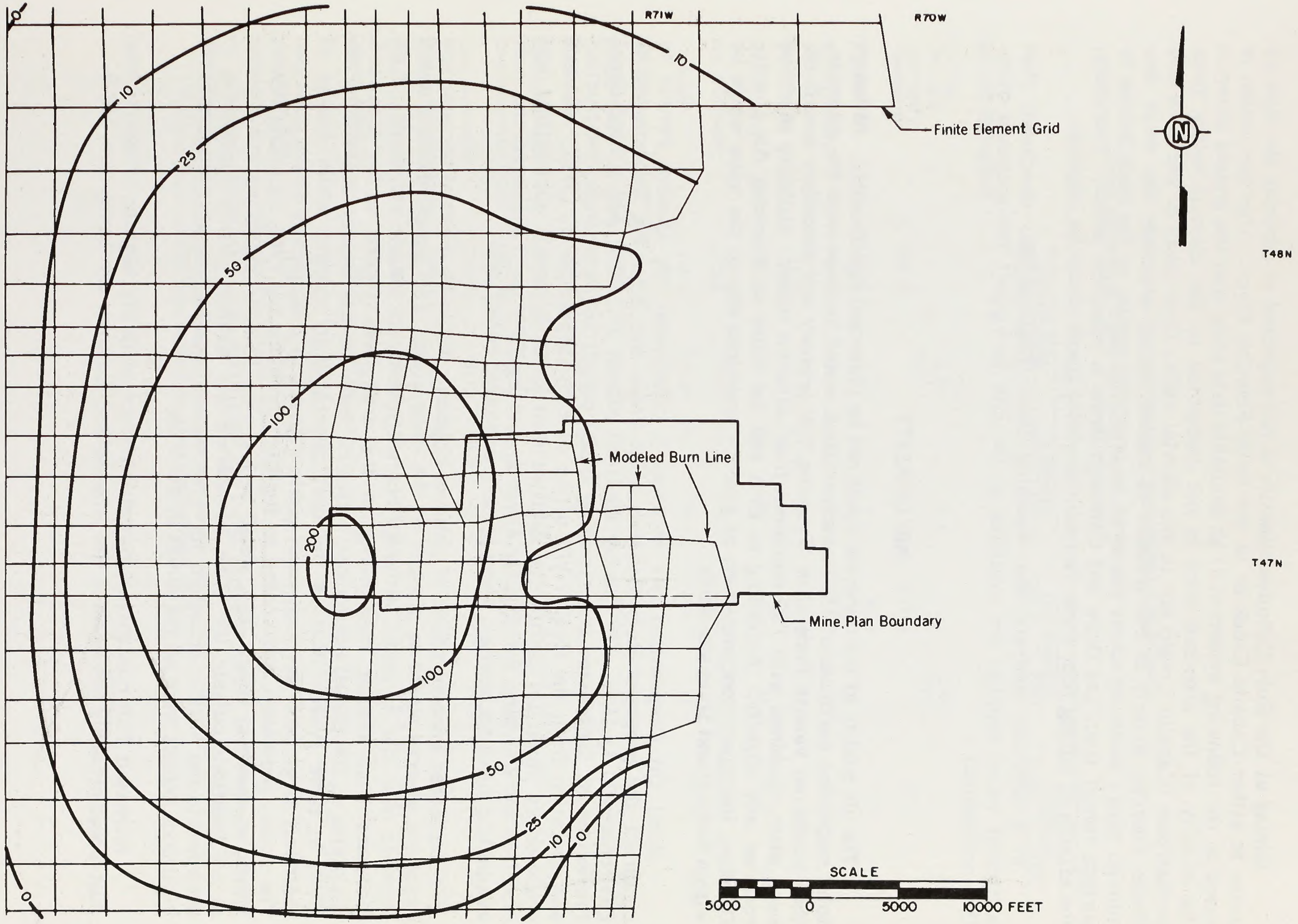

Figure IV-4.--Estimated drawdown in the Wyodak-Anderson coal aquifer, Rojo Caballos mine. (Furnished by applicant.)

Mining at the Rojo Caballos minesite is not expected to diminish the flow of water to either Caballo Creek or to the Belle Fourche River. This conclusion is based on the following evidence: 1) all available data show that the ground water in the vicinity of the proposed mine is not connected to the alluvial valley floor downstream (Caballo Creek) nor to the alluvial valley floor south of the mine site (Belle Fourche River); 2) the amount of runoff water available for these two alluvial floors would be about the same as presently exists, as the contribution to surface runoff from Les Draw and Clabaugh Draw is relatively small. Therefore, the effects of mining near these two alluvial valley floors should be minimal.

In a separate analysis, the Wyoming State Engineer has concluded that sufficient water supplies are available at the site to support the proposed mine. (See comments.)

AIR QUALITY

The air quality of the minesite would not be impacted significantly. Although total suspended particulate (TSP) concentrations would increase near the minesite, they would not violate Federal or Wyoming TSP primary and secondary standards, even when combined with TSP emissions from adjacent mines. Visibility would be reduced only slightly. According to EPA and the State of Wyoming Air Quality Division, increased concentrations of gaseous emissions due to the mine would be within Federal and State standards.

Mobil Oil Corporation has received a conditional Air Quality Permit to construct the proposed Rojo Caballos Mine from the Wyoming Department of Environmental Quality, Air Quality Division (March 27, 1979) and a conditional Prevention of Significant Deterioration (PSD) permit to commence construction and operation from the Region VIII office of EPA (September 5, 1979). Methods proposed by Mobil for controlling fugitive dust in their permit applications and modified by Wyoming Air Quality Division and by EPA are considered the best available control technology, given present economic conditions.

Increased concentrations of gaseous emissions would be minimal because few emissions sources would be present on the mine area. TSP concentrations would increase near the minesite, although not sufficiently to violate standards. Such increases from similar strip mines in the area have tended to be localized. Estimates of the annual particulate emissions from various sources at the mine are given in table IV-2. Most of the dust generated by mining would consist of relatively large particles that would settle within 1 to 2 kilometers of the minesite. The annual geometric mean based on fugitive emissions for 1988, including nearby mines, as shown in figure IV-5, would be less than 55 micrograms per cubic meter at all locations outside the mine boundaries (air quality permit application as attached to the MRP). Emissions for 1988 were chosen because this represents the maximum impact from all the mines in the area.

Increased TSP concentrations could reduce visibility slightly. Fugitive coal dust would probably not discolor the atmosphere (Latimer and Samuelson, 1975).

Table IV-2.--Estimated particulate emissions[1] (tons per year)

(Note: Differences in emissions exist because of different emission factors used in each analysis)

	1984[2]				1997[3]			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	Mobil	EPA	Mobil	EPA	Mobil	EPA	Mobil	EPA
Point and nonfugitive:								
Crushing:								
Primary		60.0		0.6		150.0		1.5
Secondary		180.0		1.8		450.0		4.5
Combined	240.0		2.4		600.0		6.0	
Train loadout	21.0	0.6	2.1	0.1	52.5	1.5	5.3	0.2
Heating boilers	19.6	19.6	2.0	2.0	19.6	19.6	2.0	2.0
Truck dump	21.0	21.0	10.5	10.5	52.5	52.5	26.3	26.3
Coal removal	10.5	10.5	10.5	10.5	26.3	26.3	26.3	26.3
Coal drill/blast	104.2	9.1	104.2	9.1	399.0	22.8	399.0	22.8
Total	416.3	300.8	131.7	34.6	1,149.9	722.7	464.9	83.6
Fugitive:								
Scraper operations	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6
Overburden removal	19.8	366.3	19.8	366.3	86.4	1,598.0	86.4	1,598.0
Coal haul roads	116.0	289.6	58.0	144.8	571.0	1,425.0	285.0	712.7
Overburden haul roads	101.8	253.9	50.9	127.0	592.0	1,478.0	296.0	739.0
Haul road repair	40.6	81.3	20.3	40.6	81.3	162.6	40.6	81.3
Overburden drill/blast	104.2	10.7	104.2	10.7	399.0	26.8	399.0	26.8
Wind erosion	36.8	129.5	36.8	129.5	129.5	129.5	129.5	129.5
Access Road	48.5	48.5	24.3	24.3	93.9	93.9	46.9	46.9
Total	493.3	1,112.7	339.9	776.1	1,978.7	4,941.0	1,309.0	3,360.6
Grand Total	909.6	1,413.5	471.6	810.7	3,128.6	5,663.7	1,773.7	3,444.2

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[1] Sources: Tables 4.1 and 4.2. Rojo Caballos PSD Permit Application to EPA and EPA Region VIII PSD evaluation of same.

[2] Year of projected maximum surface disturbance of mines in area.

[3] Year of projected maximum surface disturbance of proposed mine.

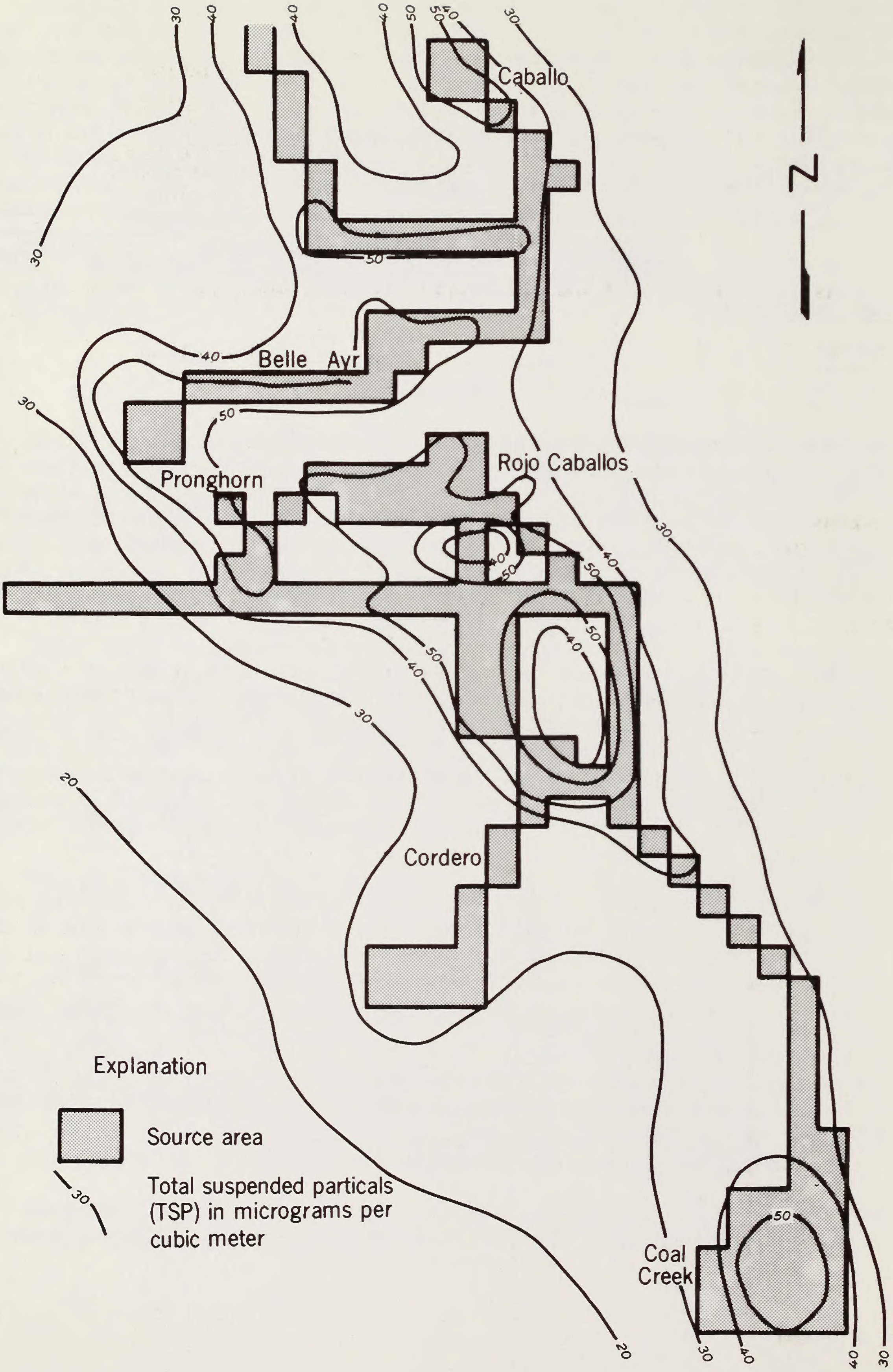

Figure IV-5.--Estimated TSP concentrations in vicinity of Rojo Caballos mine. (Furnished by applicant.)

SOILS

The changes in soil productivity on the minesite would be insignificant: the replaced topsoil would support a stable and productive vegetation adequate in quantity and kind to support planned postmining land uses - wildlife habitat and rangeland - within about 10 years after reclamation. During construction and mining, topsoil would be progressively removed and replaced on 3,745 acres. After reclamation, the soils would be unlike premining soils in structure, horizon, bulk density, and chemical composition. These soils would be more uniform in type, thickness, and texture than the premining soils.

As mining progresses, the soil would be removed and replaced on about 3,745 acres. Maximum topsoil removal would occur during year 19, when 36.9 percent of the mine area would be affected. During years 16 to 18 and 20 to 22, topsoil would be absent from 30 percent of the mine area. Thickness of the replaced topsoil would range from 2 to 5 feet (Appendix A, table A-3).

The soil forming processes would be disrupted, resulting in the alteration of soil characteristics and, consequently, the taxonomic classification of the soils. Soil characteristics that would be affected include soil structure, argillic horizons, horizons with carbonate accumulations, soil texture, soil erodibility, salinity, productivity capabilities, biological activity, and nutrient content.

The total productivity of the disturbed area would probably remain about the same, although productivity may change locally because:

- The thickness of the reclaimed soils would be more uniform than that of the present soils, especially on areas affected by coal-seam fires, where variable amounts of clinker are exposed, and in areas of alluvial fill.

- Poorer soils, such as those with clayey texture or high salinity, or areas with large percentages of shallow soils and exposed bedrock would be buried, or mixed with other materials to a more uniform physical and chemical composition.

- Uniformity of soil texture would be increased: clayey or sandy soils and those with well-developed argillic horizons would inevitably become mixed with other materials in stockpiles, even though segregated into surface and subsurface horizons in different stockpiles. This would result in more uniform vegetative productivity across the disturbed area when the soils are redistributed.

- Erodibility of the soils would be reduced in some areas, such as the units with eolian sand deposits in the western part of the permit area, and soils with minimal vegetation, such as those on playas and saline lowlands. Other, presently more stable soils, such as those on uplands under grassland, would be subject to increased erosion until effectively stabilized with vegetation. However, soil losses would, in general, be minimal: sediment control measures during mining would trap eroded soil materials, and proper vegetative stabilization would reduce wind erosion.

Changes in topsoil characteristics would occur in topsoil removed from the plant facilities area and areas mined in the first year and stored for several years before redistributing. These changes would include a decrease in nutrient content, viability of plant seeds and propagules, and soil microbial activity in topsoils that would be stockpiled, and a loss of soil structure, which would cause an increase in surface water runoff until vegetation and soil microbial activity create new structure (Howard and Samuels, 1979). These soils would represent about 2 percent of the soils on the mine area. An application of fertilizer before revegetation would replace the small losses of nutrients.

VEGETATION

Vegetation on the minesite would not have a significant long-term impact. Although the proposed mine would progressively remove the vegetation on 3,811 acres during the 26 years of operation, this would not conflict with the anticipated long-term regional land uses, and a diverse, effective, and permanent vegetation cover should be established within 40 years after seeding and planting. Surface erosion would not jeopardize the reestablishment of vegetation and should ultimately be no greater than present erosion levels. No threatened or endangered plant species have been documented on the mine plan area.

Vegetation would be removed from 3,811 acres during the life of the mine. A maximum of about 40 percent of the mine area would be removed from livestock production at any one time due to mining and restriction during revegetation. (See Land Use.) About 12 acres of vegetation would be disrupted for each 1 million tons of coal mined, or an average of about 160 acres of surface disturbance per year. About 80 percent of the sagebrush vegetation types and about 55 percent of the grassland vegetation types on the mine-plan area would be disturbed during mining. Grassland vegetation would dominate the site immediately following reclamation. It could take as long as 40 years for shrub cover to return to near premining conditions (U.S. Geological Survey, 1979, p. BIII-35).

Vegetation production on the minesite would decline as much as 60 percent below the premining levels during the life of the mine. This reduction would not seriously affect livestock production in the region, and long-term productivity on the reclaimed land would return to premining levels. The reestablished vegetation would be dominated by species found in the seed mixture. The reclamation plan includes steps to control site invasion by weedy species such as Canadian thistle. Additional species from surrounding areas would become established on the reclaimed land in 2 or 3 decades. This temporary difference in diversity would not affect the potential productivity of the reclaimed areas, and the proposed postmining land use would be achieved with the above changes in vegetation, production, and diversity.

The climatic record for the Western United States suggests that a severe drought could occur at least once during the mine life. Such a drought would severely hamper revegetation efforts during the drought year: lack of sufficient water would reduce germination and could damage newly established plants. Plants of one age could be more susceptible to disease than would plants of varying ages. Severe thunderstorms could also adversely affect revegetation efforts by causing erosion, which could remove or bury newly established vegetation. Once a stable vegetative cover is established, these storms would have a similar impact on both the reclaimed and native vegetation.

Changes expected in the surface-water network as a result of mining would not affect the reestablishment of vegetation patterns on the reclaimed areas. The overly steepened area along the south boundary could generate a high volume of sediment, possibly inundating the adjacent revegetated area, during the 10 to 11 years that would elapse before the Cordero mine remines the area and removes the oversteepened area. (See Hydrology.) If this occurs, additional time may be required to establish a vegetative cover on the inundated area.

The cumulative effects of removing vegetation during mining from the Eastern Powder River Basin are discussed in the following sections on wildlife and land use.

WILDLIFE

Long-term impacts to regional wildlife populations are not expected to be significant, because the mine plan contains an integrated grading, soil replacement, and revegetation plan. This plan would generally establish wildlife habitat comparable to that existing before mining. No rare, threatened or endangered species is known to inhabit the mine area, nor do any fisheries exist on the mine area.

Mining would eliminate part of one antelope winter range. A fall count indicated that antelope density on the permit area is 6 per square mile, with a total population of about 54 animals. (Winter density appears to be somewhat lower.) The displaced big game would compete with nearby existing populations for food and habitat. Some population reduction may be expected due to less favorable habitat or competition with individuals already in residence in adjacent areas. Increased human presence resulting in more road kills, poaching, and hunting pressure on big game in adjacent areas would constitute an additional impact from mining. The displaced animals represent 7.5 percent of the estimated total antelope population on active and planned coal mines in the Eastern Powder River Basin (based on herd unit data furnished by Wyoming Fish and Game Department for the Eastern Powder River EIS).

An unknown number of sage grouse would be displaced into unmined portions of the permit area. Mobil proposes to use a program of transplanting supplemented by natural invasion to reestablish sagebrush habitat for the grouse. Mobil will also attempt to relocate a sage grouse breeding ground (lek) from section 11 to a nearby undisturbed area. The degree of sage grouse recovery will depend on success of sagebrush reestablishment and acceptance of the reestablished lek by the birds. Experimenters working elsewhere in Wyoming have succeeded in moving sage grouse to a new lek (Eng and others, 1979, and Tate and others, 1979), but success is not assured, since sage grouse appear to be strongly attached to their display grounds and nesting areas. If sage grouse do not reestablish themselves, birds would be reintroduced after mining in cooperation with the Wyoming Game and Fish Department, if the habitat is judged acceptable by the Wyoming Game and Fish Department.

Predators (birds and mammals) would be displaced from the permit area until reclamation is complete, because their small prey species, such as burrowing animals, amphibians, and reptiles would be lost. However, adherence to the steps outlined in the mine plan would return these areas to their premining form and productivity, and a resurgence of the premining prey base can be expected. Revegetation of the area would be designed to meet some of the requirements of wildlife. (See Appendix A, p. A-13.) The area could attract herbivores; OSM staff have received reports of and have observed deer and antelope moving into recently reclaimed areas on other mines such as Caballo and North Rawhide, taking advantage of protected grazing on young grasses during the spring and summer months. However, during the fall and winter months, utilization of browse is expected to be reduced, since it would take several years before transplants and seedlings of woody plants would be usable by wildlife.

Migratory waterfowl are expected to return to the six stock ponds Mobil will replace in the mine area. Since no habitat is being disturbed that has been identified as critical, and because the MRP does not call for any permanent obstructions, animal distribution and movements are expected to be about the same after mining as they were before.

Mining is expected to destroy two ferruginous hawk nests located in the permit area, and may adversely affect a golden eagle nest located adjacent to the permit area. (See stipulation 24.)

SOCIOECONOMICS

The Rojo Caballos mine would contribute to significant social and economic impacts on Gillette and Campbell County. The mine would be one of many proposed and existing energy-development projects in the county. As such, it would contribute to both beneficial and adverse social and economic changes resulting from increased populations. Without the mine, the population of Campbell County would increase between 1980 and 1990 from 26,900 to 52,100; with the mine to 55,000. In Gillette for this same period, the population increase without the mine would be from 13,400 to 30,200, and to 32,100 with it. The cumulative impacts from all the mining in this area are discussed in the EIS on the proposed development of coal resources in the Eastern Powder River Basin in Wyoming (U.S.Bureau of Land Management, 1979a).

The following discussion of social and economic impacts is based largely on work done by Wyoming Research Corporation under contract to the U.S. Geological Survey.

Social Changes

The mine would add to ongoing social changes, both good and bad, that are due to rapid population growth in Campbell County. The exact nature of social changes due to mining have not been fully delineated, but two effects of population growth have shown a relation to various human "stress effects" popularly associated with "boom growth". Results of studies do link population growth to significant increases in the rate of crimes against property (such as burglary, larceny, and theft) and a slight increase in the number (but not the rate) of crimes against people (such as homicide, rape, and robbery). Research by the Wyoming Research Corporation suggests that divorce and suicide rates and the rate of demand for welfare would not increase in Campbell County. The increased population would need and would be able to support improved services, such as recreation, medical care, and retail selection. Business and professional people would generally benefit from higher wages. Increased employment due to energy development would increase job opportunities and provide supplemental income. The disparity between wages and opportunities in energy related employment versus those available in other sectors would continue. Prices would generally increase, although increased competition may lead to some reductions. The following groups would continue to experience adverse impacts from further energy development :

- Some ranchers, who would lose political power to the newcomers and employees to higher-paying jobs elsewhere.
- Some retired people, and others on fixed incomes who would be particularly impacted by higher prices.

Such general social changes are further discussed in an unpublished socioeconomic report available for inspection at OSM, Brooks Towers, Denver (303-837-5656).

Population

For Gillette, annual growth rates with the mine would peak at about 16.1 percent (1981-82); growth rates without the mine, would peak at 17.6 percent (1982-83). For Campbell County, growth rates with the mine would peak at 12.0 percent (1981-82); without the mine, at 13.7 percent (1982-83). After about 1983, the growth rates in Gillette and Campbell County would decline until beginning to rise again in 1987. By 1990, the population of Gillette would increase by about 1,900 persons as a result of the Rojo Caballos mine, and the population of Campbell County by about 2,900 (fig. IV-6).

The population effects of the Rojo Caballos mine are not analyzed beyond 1990 because effects of the permanent mining work force would be stabilized, and Gillette would have expanded its facilities to meet the needs. After 1990, most of the coal mines planned for Campbell County, if approved, will have been built and population growth will be levelling off or declining. If synthetic fuel plants are developed in Campbell County, the effects of the Rojo Cabalos mine after about 1988 would be obscured by the impacts of the large population increase due to the fuel plants.

Housing

The total population increase due to all proposed energy development in Campbell County by 1990 would require about 6,700 new housing units and 1,350 mobile homes, mainly in or near Gillette. Of these, about 645 and 200 would be due to the proposed Rojo Caballos mine. This increased demand for housing would cause increased rents and higher purchase prices.

The in-migrating construction workers for the mine would require 200 to 250 lots for living space between 1981 and 1983. The applicant plans to reserve this number of spaces. Of these, 70 would be allotted to recreational vehicles, 30 to mobile home units, and the remaining 100 to 150 lots would be for workers wishing to move or purchase their own mobile homes. This breakdown is based on estimated projections; actual space breakdown would depend on local hiring rates, location of subcontractors for mine construction, and subsequent demand. The applicant would assure these spaces by working with local park owners to provide financing and negotiate prelease or guaranteed space availability agreements.

The permanent mine workers would require about 460 housing units from 1983 to 2007. These demands would probably be met by developments currently planned. About 3,700 new housing units would be needed in Campbell County by 1985 to

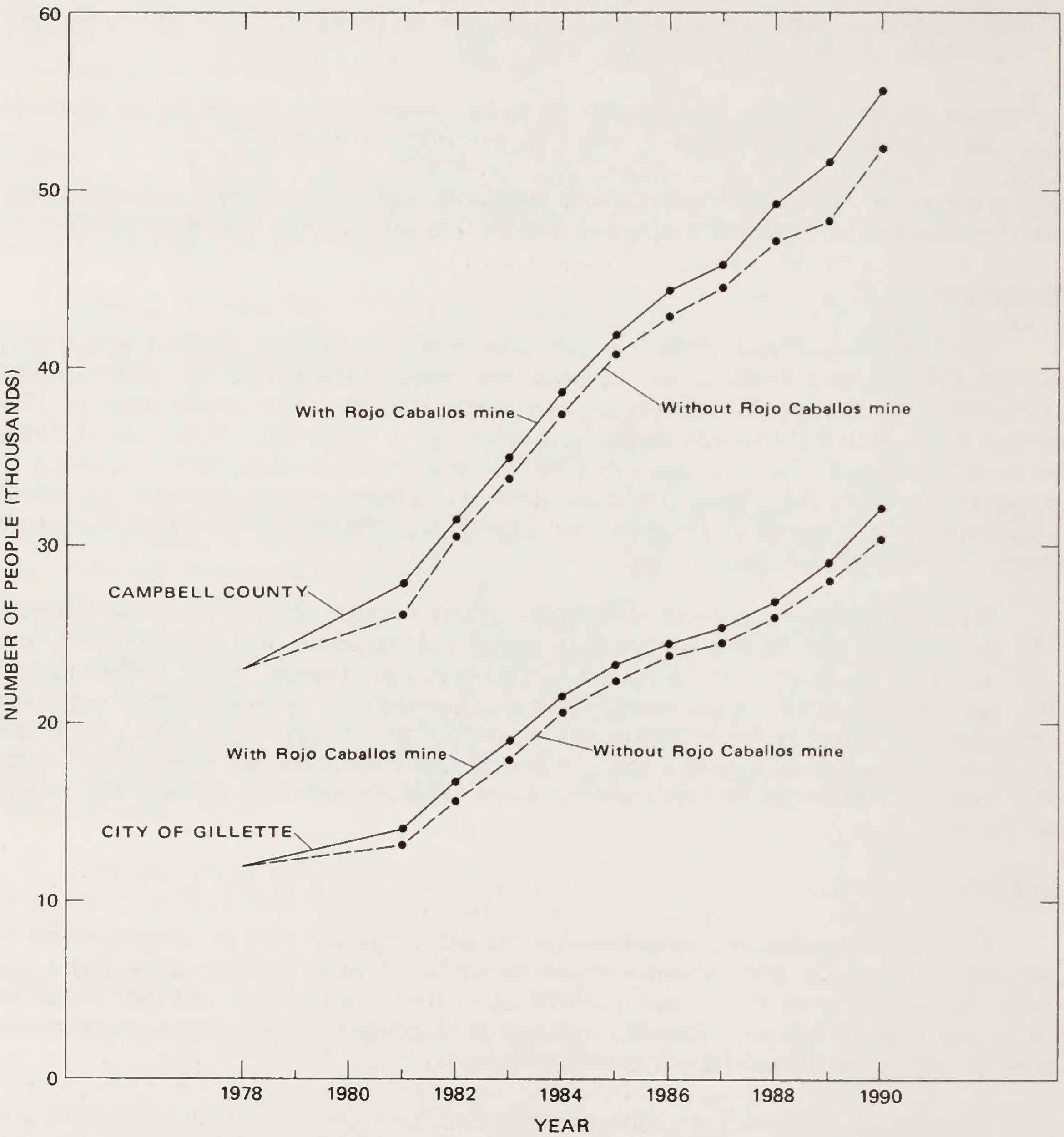

Figure IV-6.--Population estimates of the City of Gillette and Campbell County, Wyoming.

meet the demand from all the proposed energy development. To meet the anticipated demand, the number of housing units would have to increase 13.3 percent per year. Because the number increased 15 percent per year from October 1975 to April 1979, it appears that the anticipated demand could be met. Campbell County developers are planning to build 10,000 new units. Community service impacts could be minimized by encouraging these new housing units to be concentrated in the Gillette area.

When each new employee is hired, Mobil proposes to pay his moving expenses. When the employee selects a housing unit, Mobil proposes to give him a sum based on his salary to help him make a down payment. When the employee has qualified for a down payment, Mobil proposes to subsidize his interest payments, so he can qualify for a conventional home-mortgage loan.

Public Services

A growing population would increase the demand for public services (table IV-3); most such demands could be relatively easily met because present demand does not exceed capacity. Exceptions include:

- Wastewater treatment: the population increase due to the Rojo Caballos mine would strain Gillette's inadequate wastewater treatment plant from 1981 to 1983, when a new plant is to be completed.

- Law enforcement: criminal activity in Campbell County, including Gillette, has increased significantly as a result of mineral development. Crimes against property, such as burglary, larceny, and theft, have increased in both rate and in absolute numbers. Crimes against persons, such as robbery, rape, and homicide, however, have increased little in rate or absolute numbers. This pattern of increase in criminal activity appears to be consistent with patterns found in other communities growing rapidly because of energy development.

  The population increase would increase the demand for law-enforcement personnel and equipment. In Gillette, a 105-percent increase in police officers will be required between 1980 and 1990, with the Rojo Caballos mine contributing about 13 percent to this need. Currently, Campbell County is underserved, and will require 30 new officers by 1990. Recruitment and retention of law enforcement personnel is difficult in any area experiencing energy development because of the availability of other, more lucrative job opportunities. Because of this, the increased demand due to the mine may require an expanded recruitment program and an increase in wage levels to retain employees.

- Medical care: The demand for an increasing number of physicians will persist in the future for Gillette and Campbell County. Currently, this area has barely adequate medical services to serve the growing population. With new energy developments, including Rojo Caballos, about 28 new doctors will be needed by 1990. The population increase due to the Rojo Caballos mine would account for 3 of the 28 doctors needed. Recruitment of new doctors has been difficult, and the provision of all medical specialties has been even more difficult.

Table IV-3.--Public service needs, City of Gillette and Campbell County, Wyoming[1]

[Note: Figures for each year pertain to the City of Gillette and Campbell County (__/__), respectively]

	Available	Adequate for Year			
	1980	1980	1982	1985	1990
Law enforcement:					
Personnel - Total	47/35	45/39	54/46	78/60	108/79
- Rojo Caballos	---	0/0	1/2	4/1	4/4
Vehicles - Total	15/13	15/14	18/16	26/21	37/28
- Rojo Caballos	---	0/0	0/0	1/0	3/2
Fire protection:					
Personnel - Total	32/38	32/38	39/45	55/59	76/78
- Rojo Caballos	---	0/0	1/2	1/2	5/5
Streets and highways:					
Personnel - Total	19/50	23/67	28/79	40/104	55/137
- Rojo Caballos	---	0/0	1/2	1/3	3/7
Vehicles and equipment - Total	46/73	56/94	68/111	107/146	133/192
- Rojo Caballos	---	0/0	2/4	3/4	7/10
Parks and recreation:					
Personnel - Total	6/10	10/12	11/14	16/18	23/24
- Rojo Caballos	---	0/0	0/1	0/0	2/1
Area (acres) - Total	325/71	114/54	141/63	198/83	273/110
- Rojo Caballos	---	0/0	6/2	6/2	16/6
Water demand (mgal/d):					
Average - Total	1.8/--	1.8/--	2.2/--	3.1/--	4.3/--
- Rojo Caballos	---	0/--	.1/--	.1/--	.2/--
Peak - Total	3.8/--	3.8/--	4.7/--	6.6/--	9.2/--
- Rojo Caballos	---	0/--	.2/--	.2/--	.6/--
Wastewater treatment (mgal/d):					
Average - Total	1.5/--	1.5/--	1.9/--	2.7/--	3.7/--
- Rojo Caballos	---	0/--	.1/--	.1/--	.2/--
Peak - Total	3.1/--	3.1/--	3.8/--	5.4/--	7.4/--
- Rojo Caballos	---	0/--	.1/--	.2/--	.4/--
Solid waste disposal:					
Personnel - Total	19/--	20/--	25/--	35/--	48/--
- Rojo Caballos	---	0/--	1/--	1/--	3/--
Land (ac/yr) - Total	2.0/--	2.0/--	2.5/--	3.5/--	4.8/--
- Rojo Caballos	---	0/--	.1/--	.1/--	.3/--
Housing:					
Single-family - Total	2,035/--	2,194/--	2.712/--	3,799/--	5,244/--
- Rojo Caballos	---	0/--	113/--	117/--	310/--
Multi-family - Total	842/--	914/--	1,130/--	1,583/--	2,185/--
- Rojo Caballos	---	0/--	47/--	49/--	129/--
Mobile homes - Total	1,357/--	1,462/--	1,808/--	2,533/--	3,496/--
- Rojo Caballos	---	0/--	75/--	79/--	206/--
Health care:					
Physicians - Total	--/27	--/27	--/32	--/42	--/55
- Rojo Caballos	---	--/0	--/1	--/1	--/3
Hospital staff - Total	--/120	--/176	--/176	--/176	--/176
- Rojo Caballos	---	--/0	--/NA[2]	--/NA	--/NA
Hospital beds - Total	--/31	--/30	--/36	--/47	--/62
- Rojo Caballos	---	--/0	--/1	--/1	--/3
Mental health staff - Total	--/10	--/12	--/14	--/18	--/24
- Rojo Caballos	---	--/0	--/0	--/1	--/2
Schools:					
Enrollment - Total	---	--/5,755	--/6,790	--/8,925	--/11,770
- Rojo Caballos	---	--/0	--/240	--/245	--/630
Teachers - Total	319/--	316/--	373/--	490/--	647/--
- Rojo Caballos	---	0/--	13/--	13/--	35/--
Classrooms - Total	319/--	316/--	373/--	490/--	647/--
- Rojo Caballos	---	0/--	13/--	13/--	35/--
Library					
Personnel - Total	--/25	--/30	--/35	--/46	--/60
Rojo Caballos	---	---	--/2	--/1	--/3
Volumes - Total	--/45,500	--/53,900	--/63,400	--/83,400	--/110,000
Rojo Caballos	---	---	--/2,200	--/2,300	--/5,900

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[1] A socioeconomic assessment of the Rojo Caballos Mine, Wyoming Research Corporation, 1980 (unpublished).

[2] NA = not available.

Analysis of the socioeconomic impacts on Gillette has identified impacts on crime and medical care as having a potential to disrupt the welfare of the community. As described in Alternative A (chapter II), Mobil would be assisting in the monitoring of these impacted areas through compliance with the Wyoming Industrial Siting Administration permit conditions. The comprehensive monitoring effort should provide timely information so that community solutions can be formulated to alleviate any identified community service problems.

Public Finance

Fiscal impacts to Campbell County and Campbell County School District no. 1 would be beneficial; to Gillette, temporarily adverse. Mobil proposes to mitigate the adverse impacts on Gillette in part, as outlined in Appendix A.

As is typical of energy developments in the West, potential revenues due to the Rojo Caballos mine initially would exceed the expenses due to the mine in Campbell County and Campbell County School District no. 1. The mine would increase the assessed valuation in the county and in the school district, which comprises the entire County. During the period from 1980 to 1985, when the county and school district would have to expand services and facilities to accommodate population growth stimulated by the Rojo Caballos mine, fiscal surpluses should never fall below $2 million per year. These potential surpluses are primarily the result of massive increases in assessed valuation.

Gillette, however, like all towns affected by energy development, would not get tax revenues from that development in time to cover the expense of providing municipal services to the additional population due to the mine. It is already taxing at the maximum mill levy, and the assessed valuation due to the mine would not increase enough in Gillette to offset these increased expenses, because the mine is outside the municipal boundary.

In Gillette, expenses due to the mine would exceed revenues in FY 81, 82, and 85 (table IV-4). At no time during these three years would the deficit caused by Rojo Caballos exceed one percent of the total municipal budget. Gillette's total deficit due to the Rojo Caballos mine would be some $500,000--less than 1 percent of its expenditures during those 5 years. Gillette might or might not have further deficits, depending on expenditures for services that cannot now be anticipated. Mobil has purchased $1.9 million dollars worth of local improvement bonds to help offset some of this deficit. The deficit due to the mine would be greatest in FY 82. The high expenditures during FY 80 and FY 81 (table IV-4) are for a new municipal water project.

Safety

Working in a coal mine is a hazardous occupation. Accident figures for Wyoming for 1978 from the Mine Safety and Health Administration show there were 3.94 disabling (lost-time) injuries and 0.03 fatal accidents for every 200,000 man hours worked in a coal strip mine. Assuming the employees average 2,400 man-hours a year for 24 years, and an average of 400 employees actually involved in mining, this would mean about 454 disabling injuries and 4 fatalities during the life of the Rojo Caballos mine. For January through September 1979, the accident rate in Wyoming was below that for the nation. No fatalities occured in Wyoming in contrast to the 0.02 per 200,000 man hours nationwide, and the Wyoming rate of

Table IV-4.--Net fiscal projections of the Rojo Caballos mine upon the City of Gillette, Wyoming

[Note: figures represent thousands of dollars]

Category	Fiscal year 1979	1980	1981	1982	1983	1984	1985
With the Rojo Caballos mine							
Total Gillette revenues------	$10,162.9	$20,036.0	$30,536.8	$16,362.6	$17,683.1	$18,940.3	$20,112.8
Total Gillette expenditures--	10,063.3	20,939.8	30,750.9	16,764.5	18,165.8	19,450.9	20,582.6
Revenue surplus-	99.6	-903.8	-214.1	-401.9	-482.7	-510.6	-469.8
Without the Rojo Caballos mine							
Total Gillette revenues------	10,162.9	20,036.0	30,427.2	16,085.9	17,427.2	18,622.2	19,716.4
Total Gillette expenditures--	10,063.3	20,939.8	30,581.2	16,364.7	17,971.4	19,160.0	20,167.8
Revenue surplus-	99.6	-903.8	-154.0	-278.8	-544.2	-537.8	451.4
Net impact of the Rojo Caballos mine							
Impact on Gillette revenues------	0.0	0.0	109.6	276.7	255.9	318.1	396.4
Impact on Gillette expenditures--	0.0	0.0	169.7	399.8	194.4	290.9	414.8
Impact on revenue surplus-------	0.0	0.0	-60.1	-123.1	61.5	27.2	-18.4

time lost due to accidents was 2.51 man hours lost per 200,000 man hours compared to 3.31 nationwide.

LAND USE

The mine would have insignificant effects on regional land-use patterns. Although mining would preclude grazing from as much as 40 percent of the mine plan area at any time, and would hinder wildlife use during the mine life, other land in the region would be available to support these uses. Within 10 years after the initiation of each reclamation phase, rangeland and wildlife use would return to near premining levels. The accumulative time frame for the entire area affected by mining would be 40 years. Cumulative impacts of coal mining in the Eastern Powder River basin would be a reduction in revenues from cattle production over the next 40 years.

The major adverse environmental consequences of the proposed action on land use would be the reduction of livestock grazing and loss of wildlife habitat on the mine plan area during the period of mining and reclamation. This would result in short-term adverse impacts on livestock production and wildlife habitat. Planned reclamation is expected to return the disturbed wildlife habitat to similar or better quality relative to premining land use. This is reflected by stipulations in appendix B and the permit application.

During maximum disturbance, wildlife (particularly big game) use would be almost totally displaced on about 30 percent of the mine-plan area, and grazing by domestic animals would be precluded on other parts. (See Vegetation and Wildlife.) In the worst possible case (65 percent of the mine-plan area eliminated for grazing use), there would be a reduction of 1,185 Animal Unit Months (AUM's) per year--about 95 cattle. (Note: Animal Unit Month (AUM) is the amount of air dry forage (870 pounds) consumed by a cow (900 pounds) during one month (30 days).) The planned program for grazing use would initially reduce AUM's about 670 per year--about 55 cattle at any one time.

Existing and proposed coal mines in the Eastern Powder River basin contain 95,800 acres in Campbell and Converse Counties; the Rojo Caballos mine-plan area covers 5,815 of these acres. If all 95,800 acres were unavailable for grazing and wildlife at one time, this would constitute 2 percent of the acreage in the Eastern Powder River Basin. By 1990, roughly $90,000 would be lost annually in grazing revenues due to removing 21,200 acres of Federal lands from production. (Note: The calculations assume 3.5 acres/AUM, a 90 percent calf crop, and a revenue of $200.00/calf at sale time.) Mining of the Rojo Caballos mine would contribute 6 percent of this. By the year 2000, an additional $114,000 would be lost annually, with the Rojo Caballos mine contributing 9 percent, and by the year 2010 an additional $100,000 would be lost annually, with the Rojo Caballos mine contributing 2 percent.

Recreational and livestock use of the site may be improved as a result of reestablishing six large stock ponds. The present mine plan does not contain the locations of the pond sites. Therefore, the impacts of the ponds cannot be completely assessed at this time. However, proper dispersion of ponds is quite feasible since watershed areas remain about the same and almost all of the mine site is suitable for small stock ponds. Modification of shrubland on the mine plan area would have no major effect on wildlife and livestock use.

There are no prime farmlands on the mine plan area. (See Appendix C.)

Oil and gas leases on the lease area could not be developed in areas where mining is occurring. However, areas not being mined, or areas which are reclaimed after mining, could be drilled while mining/reclamation is occurring in adjacent areas. Use of the area for a mine for 24 years and reclamation of the land after mining would not conflict with any regional, local, or Federal land-use plans or policy. The Wyoming Industrial Siting Council has approved Mobil's application with permit conditions (September 18, 1980).

TRANSPORTATION

Because increases in traffic due to the mine would not overload the capacity of either the road or rail systems in the Gillette area, impacts to transportation would be insignificant. However, cumulative railroad impacts from this mine and other mines could be significant in some communities along the Burlington Northern and the Chicago and Northwestern mainlines.

Road traffic would increase noticeably on Wyoming State Highway 59, northward from Wright and southward from Gillette to the junction at County Road T-7. (See fig. I-1.) On County Road T-7 traffic would increase between State Highway 59 and the Mobil access road in NE1/4NW1/4 sec. 14 (a distance of about 5.5 miles). Mobil has relocated the present County Road T-7 where it paralleled the southern boundary of the leasehold and has paved it to Campbell County specifications. This road would be restored to its previous position when reclamation along this segment is completed.

On both County Road T-7 and Highway 59, traffic would become heaviest during construction work-shift changes, causing increased dust disturbance, noise, and delays in traffic. However, the use of buses, as proposed by Mobil, would keep the impacts to a minimum during operation at the mine. Average weekday traffic on Highway 59 with the mine would increase from about 2,100 vehicles in 1979 to about 5,100 vehicles by 1990, about 5 percent of these vehicles would be due directly or indirectly to the Rojo Caballos mine. This increase is believed to be well within road capacity once the Wyoming Highway Department finishes upgrading Highway 59.

Coal for the Laramie River Station would be transported south on the new Burlington Northern line to the mainline at Orin Junction. From there it would go southeast to Wendover, Wyoming, and then south via Colorado and Southern tracks to Wheatland. A final decision on the route to Holcomb, Kansas, has not been made, but probably the coal would follow the same route through Wheatland to Cheyenne and thence to Denver on Colorado and Southern tracks. From Denver it probably would move south to Pueblo and then east to Holcomb via the Atchison, Topeka, and Santa Fe.

The Chicago and Northwestern mainline running through Douglas is in need of repair, and currently is little used. Should this line be rehabilitated and other markets develop in the East for the coal from the Rojo Caballos mine, this line could be used, and impacts would occur to communities along it.

It is not the purpose of this EIS to speculate on where the rest of the coal would be shipped. However, most if not all of the coal being mined in the eastern Powder River basin at present is being shipped east or south of Wyoming, and it seems likely that this will be the case in the future. Therefore, it is not anticipated that the Rojo Caballos mine would increase rail traffic in Gillette. However, regional and intraregional rail traffic impacts may become significant.

The following discussion from the Star Lake-Bisti Regional Coal Environmental Statement (U.S. Bureau of Land Management, 1979c) provides a general analysis of the impacts from increased railroad traffic. Additional discussion is included in the Eastern Powder River final EIS (U.S. Bureau of Land Management, 1979a).

> The Burlington Northern (BN) mainline between Sheridan, Wyo., and Lincoln, Neb., has had a rapid growth in the amount of coal train traffic in recent years. Officials of communities along the BN mainline have identified highway traffic delays at grade crossings as the most significant problem resulting from this increased traffic. Communities that have developed around the railroad tracks are temporarily severed by passing trains if they do not have grade separated crossings. Communities with insufficient grade separated crossings find that traffic levels on the ones they have increase as motorists alter their routes to avoid blocked grade crossings. In both cases, traffic delays create an inconvenience to local residents and, more importantly, may delay the provision of essential community services such as police, firefighting, or medical aid.
>
> In some communities, in addition to acting as physical barriers, rail lines represent social barriers as well. This occurs when increased train traffic further isolates certain sectors of a community from the central part of town. Another impact is air pollutant emissions from motor vehicles delayed at railroad grade crossings.
>
> The extent of the impacts depends on the frequency of exposure, the length of the train, and the train speed. Unit trains normally are somewhat over a mile in length and take about 3.5 minutes to pass a particular point at 20 miles per hour. If the speed slows to 5 miles per hour, as it often does near inspection, maintenance, or classification yards, the train takes approximately 13 minutes to pass a point. Shorter delays would occur in undeveloped areas where the train's speed can increase. Warning devices and automobile driver hesitation also extend the amount of time a particular crossing is closed. Under normal circumstances, train movements would be spread throughout the day. Therefore, blockages normally would be limited to a maximum of 10 to 15 minutes at any one time.
>
> Related to delays at grade crossings is the occurrence of accidents at grade crossings. These will increase as train frequency increases. Every grade crossing is different, so generalized estimates cannot be related to an individual crossing. However, estimates can be made for a "typical" crossing.
>
> A typical crossing protected by flashing lights with 1,000 motor vehicles and 10 trains per day would expect to be the site of an accident 0.01 times per year (once very 100 years). At 25 trains per day this would increase to 0.03 times per year, and at 50 trains per day it would increase to 0.06 times per

year (Schoppart and Hoyt, 1968), or 6 times the expected occurrence with 10 trains per day.

Impacts resulting from rail operations would not be confined to the region, rather they would be manifested, to some degree, wherever the coal shipment goes. The impacts discussed previously would pertain to rail movement regardless of routing. Areas affected would not be subjected to new impacts, but the levels of existing impacts would increase. As discussed, the effect of an individual train would not be significant. It is the repetition of these otherwise insignificant impacts that may become significant.

Communities such as Glendo and Torrington along the Burlington Northern line, and Manville, Lusk, and Van Tassell along the Chicago and Northwestern line could experience some if not all of the impacts discussed above (written communication from Wyoming State Highway Department to OSM, October 29, 1980). These kinds of short, severe impacts could be alleviated by separated railroad-highway crossings.

Mobil would construct two concentric loop tracks with loading facilities on each loop. These loops, which would be shared with Consolidation Coal Company if the proposed Pronghorn mine were approved, would connect with the existing Burlington Northern tracks. Impacts from this construction have been included as part of the discussion of impacts from construction and operation of the mine.

Increased traffic to the mine would add to the strain on Campbell County Airport until the proposed improvements are completed.

ENERGY CONSUMPTION

Impacts on energy would be insignificant. In mining the coal, the Rojo Caballos mine would use about 1 percent of the total energy produced over the life of the mine.

The Rojo Caballos mine is expected to produce 317.5 million tons of coal over a 24-year period. This is equivalent to 5,555,600 billion Btu's total or an average of 258,000 billion Btu's per year. The amount of energy consumed by this mining operation is calculated to be 55,699.4 billion Btu's total or 2,676.44 billion Btu's per year once the maximum production level has been established in the sixth year of mining. It is estimated that about 1 percent of the total energy produced will be consumed during production of the energy source (coal).

Energy consumption is divided into: electricity, petroleum products for the mine operation, and offsite transportation. Electricity consumes 5 percent, petrolum products consume 32 percent, and offsite transportation consumes 63 percent of the total energy used to operate the mine. Railroad transport of the coal to the market place is the largest single source of energy consumption, utilizing 61 percent of the total energy budget.

Numerous alternative methods to reduce energy consumption at the proposed mine have been studied. For further details on all of the methods such as use of a dragline, conveyor, and highway haulage trucks, see the OSM study (OSM, 1980c).

The most reasonable alternatives presented in the OSM study are as follows:

- Reduce heat loss through roof and walls of ancillary facilities by means of better insulation and construction;

- Decrease employee transportation energy requirements by means of additional mass transit; and

- Decrease railroad transportation energy requirements by utilizing a coal slurry pipeline for large stable markets.

The first alternative would require higher capital costs but would reduce heat loss by 25 to 40 percent. Heat loss through ancillary facilities is estimated to be 40 percent of the energy consumed by ancillary facilities. The second alternative is not expected to result in significant energy savings due to the scattered pattern of employee homes. The third alternative would provide a 40- to 60-percent energy savings. However, other problems are inherent with a coal slurry pipeline system. First, the pipeline would have to be constructed because one does not exist. Also, the flexibility of the transportation system would be significantly impaired. These are only a few problems related to this particular proposed mine. The evaluation of other potential impacts of the pipeline is beyond the scope of this analysis of energy consumption (see OSM, 1980c).

RECREATION

Impacts to recreation would be insignificant. The present light hunting on the mine site would be eliminated during construction, mining, and reclamation. The population increase associated with the mine would overload the capacity of developed recreation facilities in Gillette, but not in Campbell County.

The primary effect of the Rojo Caballos mine on the recreation resources would be an increase in the number of people participating in and demanding recreational opportunities. Developed recreation sites in the Gillette area would receive additional use. Resulting overcrowding would lead to increased vandalism and increased maintenance and repair costs. Municipal facilities, in particular, would be inadequate to meet local needs; although the tax base would increase, there would be a lag between need and availability of funds for expanding facilities.

There are no recreation facilities, wilderness areas, etc., on the mine area and the land is little used by the public. The plant site, transportation facilities, and annual mining operations would physically eliminate up to 1,300 acres of potential hunting areas in any one year. The acreage withdrawn from recreational hunting by the company for safety reasons would be appreciably larger, but it cannot be predetermined because it depends on the extent of protection the mining company would give to mine personnel and equipment, and to the lands being reclaimed.

CULTURAL RESOURCES

Impacts to cultural resources would probably be insignificant because the two known archeological sites and the four known historical sites that would be destroyed during mining are not eligible for listing in the National Register of

Historic Places. Increased vandalism and unauthorized collecting could affect sites on nearby areas.

During mining, the four historic sites and two prehistoric sites would be virtually destroyed. Since none of these sites are considered eligible for listing on the National Register of Historic Places, measures will not be proposed to minimize or prevent adverse impacts. Site 48CA516 is considered potentially eligible and shall be protected. Cultural resources located adjacent to the mine area may be impacted by mining activities as a result of increased population in the general area. There may be increased vandalism and unauthorized collecting associated with recreational activity and other pursuits. There is always a possibility that cultural resources inventories based on available technology may not have located all sites within the survey boundaries. Therefore, the potential exists of destroying an unknown site.

ESTHETICS

Esthetic impacts would be insignificant because the area is neither esthetically distinctive nor appreciably different from surrounding areas. During construction, mining, and reclamation, the proposed mine would have an adverse impact visually. The mine pit itself would disturb some 3,615 acres. In addition, the support facilities, stockpiles, and railroads would cover about 196 acres and be as described in Appendix A. The mine would adjoin three other surface mines which are part of a strip of mines in an 80-mile belt in the eastern Powder River basin, and so would be part of a much larger area disturbed by mining.

The proposed mine would exhibit a high contrast to the existing landscape: forms would be well defined as opposed to amorphous, lines would be vertical as opposed to horizontal, and textures would be smooth as opposed to rough. All painted surfaces, excluding concrete walls which would be left natural, would be painted in a nonreflective neutral beige tone.

The existing landscape has a strong visual continuity through the systematic repetition of landform and vegetative pattern. The proposed facilities would interrupt this flow.

Because the minesite is about 6 miles from State Highway 59, drivers themselves will notice the operations little if at all. Passengers traveling in vehicles going southbound in the vicinity of the mine are expected to see considerably more of the facilities than passengers in vehicles traveling north. This is due to the fact that the hills are of a lower elevation to the northwest of the proposed mine than they are to the southwest.

A southbound motorist would see practically all the structures in the facilities area. For the northbound motorist, much of this view would be blocked out by hilltops. In neither case is the motorist expected to see the mine pits, the train loadout area, or the railroad spur.

Alternative facilities plans call for the possible construction of two 300-foot concrete silos to replace the loadout elevator. Should this occur, the structures are apt to become the area's dominant visual resource, along with the 10 silos at existing mines.

After reclamation, the contrast between undisturbed and reclaimed landforms, and between undisturbed and reestablished vegetation would barely be discernable.

NOISE

Impacts from increased noise owing to the mine are expected to be insignificant. Three other coal mines already are in operation in the area. No communities or inhabited residences are located within the estimated 55 dBA contour, and wildlife appear to have adapted to the noise from the other mines. Noise from the increased rail traffic hauling coal from the mine would have an undetermined effect on communities adjacent to the railroad line.

Impacts from blasting would be insignificant. Peak particle velocity is not expected to exceed 0.14 inch per second. Because of the low population density, vibrations and noise intrusions should be minimal.

The Noise Control Act of 1972 has identified a day-night sound level (Ldn) of 55 dBA as the maximum sound level requisite to public health and welfare with an adequate margin for safety for outdoor activity interference and annoyance (Ldn = 45 dBA for indoor activity interference and annoyance, and Ldn = 70 dBA for hearing loss). A Ldn of 55 dBA was used in this report to assess the noise impacts of the Rojo Caballos mine.

To assess the noise impact associated with the non-stationary mining operations at Rojo Caballos, operational scenarios were developed to show the equipment operations at the site for years 2, 18, and 23 of the mining operation. These years represent three distinct modes of operation. In mine year 2, there will be one pit in operation with 50 percent of the total manpower. In mine year 18, there will be two pits in operation with 100 percent of the total manpower. In mine year 23, there will be one pit in operation with 100 percent of the total manpower. The non-stationary mining operations are operations done by mobile equipment such as hauling, mining, scraping, and grading. These scenarios include the elevation of the equipment relative to the adjacent land in order to account for the acoustical shielding from the walls of the pit, and also account for different stages of production. With all operational equipment positioned, 55 dBA contours were generated for each scenario. The contours were calculated using geometric spreading, air absorption, and barriers to account for attenuation of the mining noise. Variation in the predicted sound level resulting from atmospheric and topographic inconsistencies were not considered in the development of the 55 dBA contours.

Acreage encompassed by 55 dBA contour

Scenario	Total	Outside lease boundary
Year 2	2,817	330
Year 18	6,528	1,762
Year 23	6,720	2,160

Stationary mining operations include rock crushers, conveyor system, and railcar loading operation. The conveyor system and the rock crushers combined would generate a sound pressure level of 55 dBA at a distance of about 340 feet from the location of the facilities. The distance to the nearest permit boundary line from the facility is 3,300 feet. Therefore, it was determined that the noise impact from the conveyor/crusher system would not extend beyond the boundaries of the mining operation.

The loadout area would be enclosed by a building, which would significantly reduce the noise generated during loading of a railcar. Since the noise transmitted through the loadout facility enclosure would be low in comparison to the noise generated by the haul tracks operating in the area, the noise impact of the loadout facility would be essentially masked by noise generated from the haul trucks. Therefore, it was assumed that the noise from the loadout facility will not have a significant effect on the 55 dBA contour of the mining operation. Because no communities or inhabited residences exist within the 55 dBA contour of the mining operation, only wildlife would be impacted by this noise. The greatest impact to wildlife would be habitat destruction or disruption and, therefore, it is difficult to determine the extent of noise impact alone. It is assumed to be insignificant in comparison with habitat destruction.

A 55 dBA contour was also calculated for the railroad track. The contours were calculated for four different segments of the predicted haul route. Predicted railroad traffic levels for 1985-90 (with and without the additional traffic generated by the Rojo Caballos mine) were compared with 1978 traffic levels for each railroad segment. The distances from the railroad track to the contours are shown in table IV-5.

It was not possible to determine the noise impact of railroad traffic from the Rojo Caballos mine on communities adjacent to the railroad line due to the amount of area involved and the difficulty in determining the distances from individual residences and communities to the railroad track. Also, the exact routes of the trains from the Rojo Caballos mine are not known since the market for the coal produced at Rojo Caballos has not yet been fully determined. The potential noise impact of additional railroad traffic from the mine can be estimated from the information provided in table IV-2. As with the mining operation, the greatest impact to wildlife from the train traffic would be habitat destruction.

Blasting

Seismic data were collected both in the Gillette area and adjacent to the proposed Rojo Caballos mine. None of the data collected had a peak particle velocity in excess of 0.14 inch per second. This is well below OSM's recommended limit of 1 inch per second.

Data collected by OSM, the Bureau of Land Management, and V.M.E./Nitro Noble Consultants indicate that because of the type of overburden at the proposed minesite, the attenuation of vibrations is greater in the Gillette area than the national average. Therefore, there would be less chance of damage due to vibrations from the blasting.

Because the dynamic loadings associated with blasting are a short-term, transient phenomena, and because the proposed mine would be located in an area

Table IV-5.--Noise impact on train traffic along predicted haul route

Main line rail segment	1978 traffic[1]	Expected 1985-90 traffic[1]	Rojo Caballos traffic[1]	Distance from track (feet) L_{eg} = 55 dBA 1978[3]	Distance from track (feet) L_{eg} = 55 dBA 1985-90, no Rojo Caballos train traffic[3]	Distance from track (feet) L_{eg} = 55 dBA 1985-90, with Rojo Caballos train traffic[3]
Donkey Creek to Edgemont	21	44	8	800	1,000	1,100
Edgemont to Alliance	21	44	8	800	1,000	1,100
Alliance to Grand Island	14	50	[2]4	650	1,150	1,200
Alliance to Northport	7	24	[2]4	450	750	850

[1] Coal trains only.

[2] Assumes Rojo Caballos train traffic split at Alliance.

[3] Assumes ambient L_{eg} of 40 dBA.

of low population density, it is anticipated that there would be minimal residual environmental impacts associated with blasting at the proposed mine.

The noise intrusion associated with the blasting would be within OSM's regulatory limits.

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The Rojo Caballos leasehold would be committed to coal production for 24 years, based on anticipated production levels. This is in an area already committed to coal mining and other energy developments, and the impacts from the Rojo Caballos mine would add to these developments. During this time, mining would result in the introduction of additional roads, railroads, powerlines, fences, mine structures, and associated human populations into the Gillette area--an area already undergoing change from a semiagriculturally based economy to coal and uranium mining, and oil and gas activities. This increase in population would create an increased demand for all public services. Overall, the open, basically treeless landscape would be visibly intruded more by the construction, equipment, and other human activities due to the increased population than by mining excavation and reclamation. Part of this intrusion would still be in evidence long after coal mining has ceased.

As the coal is mined, almost all components of the present ecological systems, which have developed in a more or less successional harmony on the affected land over a long period of time, would be modified and in some cases destroyed. The reclaimed land would be topographically lower, and, although it would have approximately the original contour, it would lack some of the original variety of geometric form.

During construction and operation of the Rojo Caballos mine, there would be a loss of vegetation on 3,811 acres and an accompanying disturbance of wildlife habitat and grazing land. This would amount to a loss of about 670 AUM's forage production a year. However, it is estimated that the disturbed areas would be returned to an equivalent or better forage production capacity within about 40 years of initial disturbance. Long-term productivity would depend largely on range-management practices.

Mining would destroy part of an antelope winter range and a sage grouse lek. Despite loss of wildlife during mining, it is anticipated that populations would return to normal once reclamation is completed.

Although introduced as well as native grasses and shrubs would be planted, the diversity of species found in undisturbed rangeland would not be restored in the reclaimed areas for about 40 years after the initiation of reclamation, and reestablishment of mature sagebrush habitat for antelope could take even longer.

There would be a deterioration of the ground-water quality in the mine area because of mining. This deterioration would probably take place slowly and over a long period of time. The water quality would still be adequate for livestock. During mining, depth to ground water would increase up to 3 miles from the pit for the coal aquifer. Except for the immediate vicinity of the disturbed overburden, the water levels in the two aquifers should return to premining levels after some long period of time (possibly 50 years) after mining has ceased. The water level in the combined aquifer in the disturbed overburden would return to a level somewhere between the premining levels of the two aquifers. There would be a temporary depletion of the quantity of ground water as the pit intercepts the two aquifers and the water is pumped out. There should be no permanent depletion after mining.

Mining operations and associated activities would degrade the visual resources of the area on a short-term basis. Following removal of surface facilities and completion of reclamation, the long-term impact on visual resources would be minor.

During the short term, the greatest impacts to recreation values would occur due to land disturbance, increases in population, and pollution. These changes would primarily have an impact on hunting on the permit area and on existing recreation facilities in Gillette. However, because reclamation would result in a wildlife habitat equivalent to that which presently exists, and because it appears that local recreation facilities would be increased, there should be no long-term adverse impacts on recreation.

The proposed action would provide employment directly and indirectly to 1,550 workers, thereby enhancing the long-term economy of the region. However, community services and facilities would be strained as demands from increasing populations exceed capacities. It is expected that increased traffic congestion, urban crowding, most crimes, alcoholism, and mental problems would be short-term effects that would be resolved as Gillette stabilized. In the long term, as local government revenues increase, the economic situation would stabilize at new levels of use and need.

Other industries in the region would be subjected to short-term instability and adverse impacts from increased labor turnover. People on fixed income, retirees, and agricultural workers would face increased living costs with no commensurate increase in income.

Development of mine operations and ancillary facilities would result in increased rail and highway use to move construction workers, necessary materials to the various construction sites, and coal. All facilities developed for short-term purposes would continue to be used over the long term.

Increased traffic noise and road dislocations related to construction would be short-lived--a few years. However, operation of the railroad and mine would result in longer term noise, increased traffic conflicts, and esthetic impacts for the duration of operations.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The major commitment of resources is the mining and consumption of 317.5 million tons of coal to be used for electrical power generation over the 24-year life of the mine. An estimated 15,000 kilowatts of electricity a year would be used to mine the coal during maximum production.

An indeterminable amount of clinker for aggregate would be used in the construction of mine facilities, the railroad loop, and access roads. Clinker deposits mined with the overburden and moved with other spoil would also be irretrievably lost.

The quality of topsoil on approximately 3,745 acres would be irreversibly changed. Soil formation processes, although continuing, would have been irreversibly altered by mining-related activities. Newly formed soil material would be unlike those in the natural landscape in surrounding unmined areas.

Materials such as steel, aluminum and copper used for the railroad, transmission lines, and in the manufacturing of mining machinery and buildings would be committed for the life of the various projects, but much of it would be salvageable upon abandonment.

Loss of life would occur due to both the mining operations and increased vehicular and train traffic. On the basis of strip-mine accident rates determined by the Mine Safety and Health Administration for the first nine months of 1979, fatal accidents would occur at the rate of 0.02 per 200,000 man-hours worked. Disabling (lost-time) injuries would occur at the rate of 3.31 per 200,000 man-hours worked. This would be an irretrievable commitment of human resources.

Four historic and two prehistoric archeological sites would be irreversibly and irretrievable lost. These sites may in the future be deemed "significant," even though not presently considered so. The sites that are not avoided and do not have adverse impacts mitigated would be lost. Cultural resources are a nonrenewable resource and, once lost, there is no way to regain the scientific information. Any accidental destruction of unknown archeological or paleontological values would be irreversible and irretrievable.

The coal-mining development would add to the loss of the small-town atmosphere and way of life. About 2,900 persons would be added to the area if the proposed action is approved. An additional burden would be placed on the already strained service facilities of Gillette. The proposed action would only add to these problems, however, because the other developments in the area will cause even greater changes.

The forage and associated grazing and wildlife habitat that the affected land would produce would be lost during the period of mining and reclamation.

As much as 355 acre-feet a year of water would be consumed by domestic use, plant and equipment cleaning, fire control, and dust suppression. This would be a total of 17,750 acre-feet over the life of the mine.

CHAPTER V

CONSULTATION AND COORDINATION

Prior to preparation of this final environmental impact statement, a public hearing on the draft EIS was held in Gillette on November 5, 1980. Mayor Enzie of Gillette commented on the increased demands for community services and what the applicant can do to help alleviate them. The interdisciplinary team has tried to address these concerns, as well as written comments received from the public on the draft EIS, during their analysis of the alternatives.

In addition to public comments, comments were solicited from the following:

Department of the Interior:

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines
- Fish and Wildlife Service
- Geological Survey
- Heritage Conservation and Recreation Service
- Water and Power Resources Service

Other Federal Agencies:

- Department of Agriculture
  - Soil Conservation Service
- Department of Energy
- Department of Health and Human Services
- Department of Housing and Urban Development
- Department of Labor
  - Mine Safety and Health Administration
- Department of Transportation
- Environmental Protection Agency
- Federal Energy Regulatory Commission
- Interstate Commerce Commission
- President's Advisory Council on Historic Preservation

State of Wyoming:

- Department of Environmental Quality
  - Air Quality Division
  - Land Quality Division
  - Water Quality Division
- Governor's Clearing House
- Industrial Siting Council
- State Historic Preservation Officer

Local Agencies:

- Board of County Commissioners, Campbell County
- Campbell County School District No.1

Local Agencies--Continued:

City of Gillette
Gillette/Campbell County Department of Planning and Development

Applicant:

Mobil Oil Corporation

Private Organizations:

Friends of the Earth
Gillette New-Record
Izaak Walton League, Wyoming Division
National Resources Defense Council, Inc.
Powder River Basin Resource Council
Public Lands Institute
Rocky Mountain Center on Environment
Sierra Club
State League of Women Voters, Wyoming

The following pages contain the comments on the draft EIS received by OSM and the interdisciplinary team's responses.

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Bureau of Land Management	3
Bureau of Mines	6
Fish and Wildlife Service	8
Heritage Conservation and Recreation Service	9
National Park Service	10
Water and Power Resources Service	11
Soil Conservation Service	12
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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
State Office
P. O. Box 1828
Cheyenne, Wyoming 82001

IN REPLY REFER TO
1793 (922)

DEC 23 1980

Memorandum

To: Bob Schueneman, Office of Surface Mining, Brooks Tower, 1020 15th Street, Denver, Colorado 80202

From: State Director, Wyoming

Subject: Comments on the Draft EIS for the Rojo Caballos Mining and Reclamation Plan

This memorandum confirms our comments which were provided to you by phone on Friday, December 19, 1980, and serves as BLM's official review of the DEIS.

1 We compliment you on this draft document because it is brief, easy to read, emphasizes significant points, and avoids unnecessary material and lengthy discussion through excellent use of referencing.

We would like to go on record as supporting your proposed socioeconomic monitoring program and recommend that it be considered for use on every new coal lease or mine in Wyoming. Our specific comments are located in the enclosure.

Thank you for your cooperation in providing this review extension. We suggest that in the future you send copies of documents for review to the affected BLM State Office environmental coordination staff. We regret that our technical resource staff was not able to review this document.

Jack Belman

Enclosure

cc:
Casper D.O.
W.O. 202-B
OEPR

---

1 Thank you for your comments and recommendation concerning socioeconomic monitoring programs. OSM has tried to be consistent with previous mine plan reviews in Campbell County in the development of a socioeconomic monitoring program. Other recently approved mines, such as Shell Oil Company's Buckskin mine, Carter Oil Company's Caballo mine and Rawhide mine have a similar socioeconomic monitoring program.

2 We have been in contact with Ron Moore of the Division of Resources office of BLM and understand that the unsuitability review of the lease area is currently underway. This review will be completed and a recommendation made by BLM prior to any action on the plan by the Assistant Secretary for Energy and Minerals.

3 OSM has not identified any conflicts with any Federal, regional or local land use plans or policies. We have added appropriate language to the "land use" section on p. IV-25 to clarify this.

4 Text has been revised to include a discussion of the land and mineral ownership in the final environmental impact statement. As can be depicted from page I-3, the majority of surface ownership on the leasehold is held by Mobil, with small parcels owned by other corporations and the State. In addition, the easements which Mobil has had to obtain or is in the process of obtaining for construction of powerlines, railroad loops, roads, and other utilities includes other companies/corporations, the Tri-County Electric Association, Inc., Campbell County, and the State of Wyoming (Appendix B, p. B-IV and Appendix E, p. E-II of vol. I of the Adjudication File of the mine permit application). It appears that no easements/rights-of-way are necessary to cross Federal land (as no Federal land is involved in the construction of utility lines or facilities).

Comments on the Rojo Caballos DEIS

The following lists our concerns and comments on the Rojo Caballos DEIS:

2 1. Unsuitability Criteria: These criteria must be applied at some stage of the permitting process. Since their application could affect this mine and plan some reference or adjustment to them should be made in the EIS. Currently, a court case is on the dockets which may resolve the application of these criteria for both of our agencies. We suggest that you maintain contact with Ron Moore (FTS 328-2413) in our minerals office to keep abreast of this situation.

3 2. Land Use Plans: According to 40 CFR (1502.16) the DEIS must include any conflicts between the proposed action and the objectives of federal, state, or county land use plans or policies. A statement of conformance, if applicable, would suffice.

4 3. Map/Land Status: We suggest you include a map and a complete discussion early in the document which clearly identifies both land ownership and mineral ownership thereby delineating jurisdictional boundaries, etc. In addition to this discussion you should add (and analyze) the needs and impacts of any rights-of-way (R/W) or other permits which will be needed to cross federal lands for roads, power lines, etc. Adding and analyzing any required R/W's in this document would allow BLM to expedite the permit process.

5 4. Chapter II - Proposed Stipulations

Page 2 (Stipulation #3) - This stipulation should indicate how many years the water table monitoring program will be in effect.

Page 3 (Top of Page) - Identify the regulatory authority by name.

Page 3 (Last stipulation) - This stipulation should indicate the length of time that the monitoring program will be required. We suggest that this be added to other new operations in the area.

6 5. Socioeconomic Mitigation: The proposed socioeconomic mitigation measure is unique. We suggest that the DEIS include documentation of the support of any local, regional, and state agencies. In addition, efforts and results of any relevant consultation with Mobil Oil should also be documented.

7 6. T&E Species: The statements concerning threatened/endangered species pages III-11 and IV-16 are inconsistent.

7. Chapter III - Socioeconomics

8 a. While the numbers of law enforcement employees was discussed, the DEIS should address fire fighting and law enforcement facilities, capabilities, and future needs.

9 b. The FEIS should indicate what, if any, actions are being taken to correct the medical personnel shortage.

10 c. The FEIS should address the impacts to persons on fixed incomes living in Campbell County and what, if any, actions are being taken to offset the impacts.

5 The list of stipulations on pp. II-2 and II-3 are summarized from the detailed list appearing in Appendix B. As stated in Appendix B, ground water monitoring will be done monthly during mining and until reclamation is complete (bond release time).

The term "regulatory authority" has been defined on p. II-3 and in Appendix B.

The last stipulation appearing on p. II-2 has been deleted as explained in the alternatives section.

6 As stated above, the socioeconomic stipulation has been deleted (see the alternatives section of the environmental impact statement and OSM's response to Mobil's letter, comment 21). Because of this, we have not made any additions to the text. However, see the comment letters from the Governor of Wyoming, the Wyoming Industrial Siting Administration, and the Mayor of Gillette.

7 The confusing statements concerning threatened and endangered species have been clarified in the text.

8 A detailed, comprehensive assessment was prepared by the Wyoming Research Corp. for OSM on the addition of the proposed Rojo Caballos mine to other developments in Campbell County (available at OSM, Denver Regional Office, 1020 15th Street, Denver, Colorado 80202). In this detailed assessment, demands for additional police equipment as well as medical facilities and personnel are shown to increase. The magnitude of these impacts will depend on the coordinated efforts of the city, County, and industry to identify and respond to these community needs. In addition, the new hospital facility may attract new physicians to Campbell County.

The impacts to persons on fixed incomes was briefly discussed on p. IV-18 of the draft environmental impact statement. Other than the senior citizen's center, and various Federal, State, and local programs, such as Meals on Wheels and Social Security cost of living increases, we are unaware of any new authorized programs to provide assistance.

9 See response 8 above.

10 See response 8 above.

11 A brief discussion has been added to chapter III.

12 A detailed assessment of the school system is discussed in the socioeconomic assessment on the Rojo Caballos mine mentioned above. The school system, both financially and structurally, appears to be in good condition, although additional classrooms, teachers, etc., will be needed annually (as indicated on p. IV-21 of the draft environmental impact statement) to provide adequate educational opportunities.

11 d. The water supply discussion should address present capacity and point out any existing or recent past water usage or shortage problems.

12 e. The narrative on the school system should also address the existing situation as to teacher to pupil ratios; turnover rates; and SAT test results compared to past performance in Campbell Country as well as to other cities in the State. The text should indicate if the current facilities are over-crowded or not, etc.

13 f. The housing data should include or address: cost per unit; availability of units (by type, i.e., houses, trailers, apartments, etc.); availability of financing, and current housing availability, etc.

14 g. Since a majority of the respondents indicated some concern regarding adverse social changes; the EIS should discuss impacts and possible mitigation measures which would reduce or eliminate them.

15 8. Cultural Resources: The statements related to cultural resources (pages III-14 and IV-27) should be referenced or cited a source. The FEIS should show State Historic Preservation Officer (SHPO) consultation and agreement in regards to these sites.

16 9. Mineral Conflict: Almost all of the land involved in this lease has been leased for oil and gas development. This may be a potential conflict unless the leases are held by Mobil Oil.

10. Cumulative Impacts (Chapter IV)

The cumulative impact analysis is adequate in all but three cases.

The EIS should address the relationship between this mine and

17 a) total amount of coal to be extracted from Powder River Basin during the expected mine life,

18 b) cumulative impacts of the entire coal mine complex in the Basin and the part that this mine adds to antelope mitigation routes and populations, and

19 c) cumulative impact of lek destruction on sage grouse population in the Basin during this mine's life.

13 The housing situation in Campbell County is not unlike other areas in the United States. Housing availability is marginally adequate, interest rates are high, and the vacancy rate traditionally has been low. However, numerous companies have provided various types of assistance to their employees to secure housing. Although a comprehensive assessment of housing is needed and is not in our socioeconomic assessment, our assessment does include an analysis of housing availability and future demand by housing type. In the future there will be a serious problem in Campbell County with the available housing stock having to increase by approximately 80 percent by 1985.

14 The environmental impact statement does discuss briefly in chapter IV the impacts to social change to which the proposed mine would contribute. The monitoring program required by the Wyoming Industrial Siting Administration, in which Mobil would participate, should help to identify social impact problems (such as crime occurrence and location). The program participants can also develop appropriate measures in conjunction with the local authorities to alleviate problems.

15 The final environmental impact statement references the source of the information and has the comments received from the Wyoming State Historic Preservation Officer (see Appendix D).

16 Oil, gas, and other mineral ownership and leases in the Rojo Caballos lease area are in a checkerboard pattern and include Mobil, other corporations, individuals, U.S. Department of the Interior, and the State of Wyoming. There would be a conflict with coal extraction from this leasehold during the 24 years of the mine life. Oil and gas development could resume once reclamation is complete.

17 There are so many unknowns involved that an estimate of coal production from about 16 mines over 24 years is rather meaningless. Using data in table R1-2 of the Eastern Powder River Basin FES (U.S. Bureau of Land Management, 1979a), we estimate that about 4 billion tons of coal would be mined in the Eastern Powder River Basin during the life of the Rojo Caballos mine.

18 Cumulative impacts to antelope and sage grouse habitat have been discussed previously in the Eastern Powder River Coal final environmental impact statement, prepared by the U.S. Bureau of Land Management, 1979a (p. R2-54).

19 See response 18 above.

United States Department of the Interior
BUREAU OF MINES
P. O. BOX 25086
BUILDING 20, DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Intermountain Field Operations Center

November 14, 1980

Memorandum

To: Robert Schueneman, Office of Surface Mining Reclamation and Enforcement, Denver, CO

From: Acting Chief, Intermountain Field Operations Center

Subject: Review of Draft Environmental Impact Statement on the Proposed Rojo Caballos Mining and Reclamation Plan (FES 79-34 or OSM-EIS-3)

Personnel of the Intermountain Field Operations Center, Bureau of Mines, have reviewed the subject document as requested by Donald Crane, Regional Director, Region V Office of Surface Mining. The statement was prepared by Region V of the Office of Surface Mining (OSM) and the U.S. Geological Survey.

1 The preferred alternative A and alternative B include stipulations, added to the original reclamation plan by OSM, which are required to bring the plan into compliance with applicable Federal, State, and local requirements enacted since the plan was submitted. We have no objection to these stipulations. Stipulation 42, however, pertains to socioeconomic effects of the mining operation. This stipulation seems to place a disproportionate burden of responsibility on the applicant company for data collection, maintenance, and analysis. The company would be producing less than 10 percent of the total projected coal production in the Powder River Basin in any 1 year of operation and would be collecting socioeconomic data for the entire area. Under alternative B, measures to alleviate adverse socioeconomic impacts would be delayed or nonexistent.

2 Neither the applicant's proposal nor the stipulations added by OSM mention an oil well in section 2 of the mine plan area or what steps will be taken to protect the oil well or the surrounding ground water from possible surface contamination. The well (figure A-4) is located in the facilities area of the mine and could be adversely impacted by mining activities if it is a producing well, or if inactive, has not been properly sealed. Stipulation 16 covers only management of "exploration holes, boreholes, and wells" to prevent acid or toxic drainage from entering the ground water.

1 Stipulation 42 has been removed; see the response to Mobil's comment 21 as to the reason for this. OSM has worked with the company, the city of Gillette, and Campbell County to assure an adequate evaluation of impacts and mitigation measures as presented in the environmental impact statement.

2 The oil well in section 2 of the mine plan has been incorrectly identified on the mine plan topographic map. This should be identified as an oil exploration borehole. The exploration borehole is covered by stipulation 16 (now 14).

3 The applicant company agreement with adjacent mine companiea covering backslope mining is a commendable proposal for maximum utilization of the resource available.	3 Thank you for your comment.
4 In response to the special request for comments on page I-3, we agree that environmental costs would not be appreciably lessened by mining the coal elsewhere or by using an alternative method of mining.	4 Thank you for your comment.

H. C. Stewart

H. C. Stewart

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO:
ES

November 4, 1980

MEMORANDUM

TO: Office of Surface Mining, Brooks Towers Building, 1020 15th Street, Denver, Colorado 80202

ATTN: Robert Schueneman

FROM: Area Manager, USFWS, Billings, Montana 59101

SUBJECT: Draft Environmental Statement OSM-EIS-3

We have reviewed the draft environmental statement, OSM-EIS-3, for the Rojo Caballo mine in Campbell County Wyoming. We feel that the draft adequately addresses expected impacts to wildlife. We also concur in the application of the stipulations contained in Appendix B.

Sincerely,

Wally Steucke
Area Manager

cc: OEC, Washington, D.C.
Bob Berg, Coal Coordinator, Cheyenne, WY

Thank you for your comment.

United States Department of the Interior
HERITAGE CONSERVATION AND RECREATION SERVICE
MID-CONTINENT REGION
POST OFFICE BOX 25387
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

IN REPLY REFER TO:

1202-04
DES 80/62

NOV 1 8 1980

MEMORANDUM

To: Office of Surface Mining, Reclamation and Enforcement, Denver, CO

From: Assistant Regional Director, Land Use Coordination

Subject: Review of Draft Environmental Statement on the Proposed Rojo Caballos Mining and Reclamation Plan, Campbell County, Wyoming

Impacts to the cultural resources of the area may be significant. The National Environmental Policy Act does not limit protection of cultural resources to those that meet National Register criteria. Survey, evaluation and appropriate mitigation measures must be presented in the environmental statement before a Federal coal lease is granted. Furthermore, mitigation measures should be completed or in action before mining begins, including mitigation of projected problems with vandalism and unauthorized collecting. The site reports should be reviewed by the State Historic Preservation Office:

Mrs. Jan L. Wilson, Acting Director
Wyoming Recreation Commission
604 East 25th Street
Box 309
Cheyenne, WY 82001

Robert J Arkins
Robert J. Arkins

An additional survey for cultural resources has been completed, and a report submitted. The information has been integrated into the final environmental impact statement. See chapter III, Cultural Resources. The Office of Surface Mining and the Wyoming State Historic Preservation Officer concur that approval of the Rojo Caballos mine plan would have no effect on the cultural resources listed on, or eligible for listing on the National Register of Historic Places (Appendix D). Furthermore, the Advisory Council on Historic Preservation concurs that site 48CA516 should be left untested, as it would not be impacted by mining operations (Appendix D).

Old stipulation 38 (now 31) has been revised and a new stipulation 38 has been added. (See Appendix B.)

United States Department of the Interior
NATIONAL PARK SERVICE
ROCKY MOUNTAIN REGIONAL OFFICE
655 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

IN REPLY REFER TO:
L7619 (RMR)PC

OCT 1 4 1980

Memorandum

To: Mr. Robert Schueneman
Office of Surface Mining Reclamation and Enforcement,
Denver, Colorado

From: Associate Regional Director, Planning and Resource Preservation,
Rocky Mountain Region

Subject: Draft Environmental Impact Statement (DEIS) on the proposed
Rojo Caballos Mining and Reclamation Plan

We have reviewed the subject document. It does not appear there will be any direct consequences to any unit of the National Park System. Devil's Tower National Monument is the nearest unit of the System, some fifty-five miles to the Northeast.

1 Page IV-9 states that mining at the Rojo Caballos Mine Site is not expected to diminish the flow of water to the Belle Fourche River. This river flows through Devil's Tower National Monument, and we would like to be assured that the mine operation will be adequately and frequently inspected to see that this statement holds true.

Richard A. Strait

Year of the Visitor

1 Mobil has committed to the installation of flow recorders on Caballo Creek (a tributary of the Belle Fourche River) upstream and downstream of the reach where the Rojo Caballos mine could affect the creek. Thus, the surface flows will be continuously monitored to determine any impact the mine might have.

United States Department of the Interior
WATER AND POWER RESOURCES SERVICE
Upper Missouri Region
P.O. Box 2553
Billings, Montana 59103

IN REPLY REFER TO: UM-150

NOV 14 1980

Memorandum

To: Robert Schueneman, Office Surface Mining Reclamation and Enforcement,
Brooks Towers, 1020 15th Street, Denver, Colorado 80202

From: Acting Regional Director, Billings, Montana

Subject: Draft Environmental Statement - Proposed Mining and
Reclamation Plan, Rojo Caballos Mine, Wyoming (DES 80-62)

The Rojo Caballo mine and reclamation plan should have no effect on projects of the Water and Power Resources Service.

We offer the following comments:

1	1. Page III-8, Soils Section, second paragraph - If the four mapping units within the area were identified, the location and areal extent of these units could then be referenced on Figure III-2.	1 The four mapping units in question have been included.
2	2. Page III-6, Figure III-2 - What is the source of the units shown on this map and listed in the accompanying legend on Page III-7? If an SCS survey was utilized for these data, it would be beneficial to indicate it so one could reference it for additional information on the mapping units.	2 The source is indicated on figure III-2.
3	3. Page IV-12, Soils Section, first paragraph, first sentence - "The changes in soils on the minesite would be insignificant." Based on the discussion concerning soil changes which follows this conclusive statement, it appears questionable whether the term "insignificant" is appropriate. Effects on soil productivity rather than the soils, themselves, seems to be what was intended.	3 The text has been changed.
4	4. Page IV-12, Soils Section, first paragraph, second sentence - This sentence should be omitted from the first paragraph since it is used as the first sentence in the second paragraph.	4 This sentence is repeated as the first paragraph is a summary for the following soils section.
5	5. Page IV-15, first paragraph, second sentence - The term "soil erodibility" is suggested to replace "soil erosion," since the latter is not an actual soil characteristic, but rather a natural process. The first term is identified as an inherent soil property.	5 The text has been changed.

JMVerzuh
James M. Verzuh

cc: Director, Office of Environmental Project Review, Office of the Secretary, Department of the Interior, Washington, DC 20240
Commissioner, Attention: 150

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P.O. Box 2440, Casper, Wyoming 82602

November 17, 1980

Robert Schueneman
Office of Surface Mining Reclamation and Enforcement
Brooks Tower
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

We have reviewed the Draft Environment Statement for the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming and have no comment.

Frank S. Dickson
State Conservationist

cc: Robert W. Cobb, Assistant State Conservationist (0)
L. C. Young, State Resource Conservationist

Thank you for your review.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
REGION VIII
FEDERAL OFFICE BUILDING
1961 STOUT STREET
DENVER, COLORADO 80294

November 5, 1980

OFFICE OF THE
PRINCIPAL REGIONAL OFFICIAL

ROFEC

Mr. Robert Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 - 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

We have reviewed the Draft EIS for the Rojo Caballos Mines, Campbell County, Wyoming and have the following comments:

1 1. Campbell County is well known as an area which has already been heavily impacted by energy development. The county has been the subject of a number of socioeconomic studies in recent years. The Draft EIS refers to recent research which suggests that the rate of demand for welfare would not increase in Campbell County. It may be true that this proposed mining operation would have no particular impact. However, the AFDC caseload in the county has doubled in the past two years and the demand for emergency cash assistance threatens to exhaust currently available resources in a short time. Interestingly, much of this demand is attributed to recently available low income housing which has enabled some low income people to remain in the county in spite of the exceptionally high cost of living.

2 2. The incidence of known family problems, such as child and spouse abuse, is high in Campbell County. The County Office of Public Assistance and Social Services is coping fairly well with problems of this nature. However, this is resulting in some neglect of other social problems such as the needs of the elderly, and the demand for child day care.

1 The text (chapter III, socioeconomics section) refers to the increase in the welfare needs of children, which does relate directly to AFDC program demands. The statement in chapter IV on the demand for welfare not increasing in Campbell County is a result of recent research by the Wyoming Research Corporation.

2 Currently, the Wyoming Research Corporation is doing additional research into the occurrence of social problems, some of which you mention, in Wyoming and other western states. We have notified Mobil of the opportunity to assist the Campbell County Office of Public Assistance and Social Services in establishing a facility for battered spouses in Gillette.

Mr. Robert Schueneman - Continued

2 It has been the experience of the County that some mining companies have contributed to the community in significant ways, while others have paid only "lip service." The Campbell County Office of Public Assistance and Social Services suggest that Mobil, or perhaps a consortium of mining companies, assist them in establishing a facility for battered spouses in Gillette. Please ensure that Mobil Oil Corporation is made aware of this opportunity. The County Office is prepared to work with them to assure that such facility meets the needs of the community.

Sincerely yours,

Thomas E Moore

Thomas E. Moore, P. E.
Director, ROFEC
Regional Environmental Officer

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL/AREA OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

REGION VIII

IN REPLY REFER TO:
8SOQ

October 23, 1980

Mr. Robert Schueneman
Office of Surface Mining and Enforcement
1020 15th Street, Brooks Towers
Denver, Colorado 80202

Dear Mr. Schueneman:

Thank you for the opportunity to review and comment on the draft Environmental Impact Statement (OSM-EIS-3), for the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming.

1 Your draft has been reviewed with specific consideration for the areas of responsibility assigned to the Department of Housing and Urban Development. The review considered the proposals' compatibility with local and regional comprehensive planning and impacts on urbanized areas. Within these parameters, this document is found to be outstanding.

If you have any questions regarding these comments, please contact Mr. Carroll F. Goodwin, Area Environmental Officer, at 837-3102 in Denver.

Sincerely,

Raymond D. McKinney
Director
Program Planning and Evaluation

AREA OFFICE
DENVER, COLORADO

1 Thank you for your review.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

NOV 17 1980

Ref: 8W-EE

Mr. Bob Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

1 We have reviewed the Rojo Caballo draft environmental impact statement and are in agreement with the selection of the preferred alternative requiring Federal and State stipulations for the mining and reclamation plan and mitigation of socio-economic impacts. We believe that a more comprehensive study of noise generated by unit trains and their effects on communities along rail routes should be undertaken as the Eastern Powder River final environmental impact statement does not adequately assess these impacts. The cumulative effect of mine approvals with attendant impacts from increased unit trains deserves analysis.

2 Based on our system of categorizing environmental impact statements, we have rated this statement LO-1. This means we have no objections to the proposed action but do recommend that regional noise impacts generated by unit trains from mines like Rojo Caballo be assessed.

If you have any questions, you may contact Sue Mamich (FTS 327-4831) on my staff.

Sincerely yours,

Roger L. Williams
Regional Administrator

1 A noise assessment study of the Rojo Caballos mine has been made, and a summary of this study is included in the final environmental impact statement. The amount of noise generated by railroad traffic was calculated and a 55 dB contour was drawn around the railroad track. For 5 different segments of the main line, the distance from the track to the 55 dB contour line was calculated. A figure was calculated for 1978 rail traffic, 1985/1990 traffic without additional trains from Rojo Caballos and 1985/1990 traffic with additional trains from Rojo Caballos. The additional train traffic from Rojo Caballos will result in the 55 dB contour being extended approximately 100 feet farther from the track. It was not possible to determine the exact effect of additional train traffic on communities adjacent to the railroad line, due to the amount of area involved and the difficulty in determining the distances from individual residences and communities to the railroad track.

2 Thank you for your comment.

Advisory
Council On
Historic
Preservation

1522 K Street, NW
Washington, DC 20005

Reply to:

Lake Plaza South, Suite 616
44 Union Boulevard
Lakewood, CO 80228

October 28, 1980

Mr. Robert Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

Thank you for your request of September 19, 1980, for comments on the draft environmental statement (DES) for Proposed Mining and Reclamation Plan Rojo Caballes Mine.

1 On May 20, 1980, the Chairman of the Council ratified a Programmatic Memorandum of Agreement (PMOA) among the Department of the Interior, Bureau of Land Management, Office of Surface Mining Reclamation and Enforcement, and U.S. Geological Survey, and the Advisory Council on Historic Preservation regarding the Federal Coal Management Program. The Agreement should be referenced in each environmental impact statement and environmental assessment involving a Federal Coal action it covers. This will enable anyone reviewing the document to understand the steps that will be taken to ensure adequate protection for affected historic and cultural properties.

2 While we note that OSM has determined that the investigations previously preformed to identify eligible cultural properties were inadequate and OSM will require a cultural survey in the mine area prior to the approval of the mine plan, we remind OSM that if these surveys reveal historic and cultural properties that appear to meet the National Register criteria it must fulfill its responsibilities pursuant to the Agreement. Further, we note that three historic and two prehistoric sites were identified in the area of impact by previous surveys. However, the environmental statement fails to demonstrate how the determination that none of these properties are eligible for inclusion in the National Register was derived.

Because the above-cited information has been excluded, we find that your DES does not contain sufficient information concerning historic and

1 The Programmatic Memorandum of Agreement (PMOA) is cited in the final environmental impact statement.

2 A final environmental impact statement discusses the progress of the 106 compliance at the draft environmental impact statement stage and at the final environmental impact statement stage. The cultural resources surveys are complete and the final environmental impact statement demonstrates how the determinations of site eligibility/non-eligibility were made by OSM in consultation with the SHPO.

Page 2
Mr. Robert Schueneman
Rojo Caballes Mine
October 28, 1980

cultural properties for our review purposes. Please include the above information in the final environmental statements or any other document prepared for this undertaking. If you have any questions, please call Mrs. Betty J. LeFree at (303) 234-4946, an FTS number.

Sincerely,

Louis Wall

Louis S. Wall
Chief, Western Division
of Project Review

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

November 18, 1980

Mr. Donald Crane
Office of Surface Mining,
Reclamation and Enforcement
1020 15th Street
Denver, CO 80202

Dear Mr. Crane:

The draft environmental impact statement on the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming has been circulated for review by our state agencies. Several agencies have completed their review and their comments are enclosed for your consideration and use. Should any additional agency comments be forthcoming, we will forward them to your office. The overall mining project has been reviewed and cleared by our Industrial Siting Council. The plan's preferred alternative appears to adequately recognize and support the need for complete mitigation of any adverse socio-economic impacts and the need for an effective reclamation effort. 1

Thank you for the opportunity to review and comment on this proposed plan. Please keep me informed of any further progress in the development and finalization of this plan.

Yours sincerely,

EH:pcd
enclosures

1 Thank you for your comment.

THE STATE OF WYOMING

Ed Herschler, Governor
Leno Menghini, Superintendent and Chief Engineer

Wyoming State Highway Department

P. O. BOX 1708 CHEYENNE, WYOMING 82001

October 29, 1980

MEMORANDUM

TO: Dick Hartman
State Planning Coordinator

FROM: William P. King
Environmental Services Engineer WPK

SUBJECT: Comments on Draft Environmental Impact Statement
for Rojo Caballos Mine, Campbell County
State Identifier: 80-148

We have reviewed the subject Environmental Impact Statement and offer the following comments:

1. The highway system in the Gillette area will not be seriously impacted.

2 — 2. The discussion of coal shipments is hazy and omits coal train routes--particularly the communities that the trains will pass through and be impacted. We assume from the markets (Wheatland, Wyoming and Holcomb, Kansas) that they will be routed south to Orin Junction; then on either the Chicago and Northwestern through Manville and Lusk, or on the Burlington Northern through Glendo, Guernsey, Fort Laramie, Lingle and Torrington.

The impacts along the Chicago and Northwestern track have been pointed out in reviewing the Environmental Impact Statement for rehabilitating the Chicago and Northwestern line to accomodate coal train traffic. In short railroad/highway crossings at Manville, Lusk and Van Tassell must be separated.

Along the Burlington Northern line southeasterly from Orin Junction, Guernsey is the only community that has separated railroad/highway crossings and probably would not suffer serious crossing impacts. While the initial shipments of 7 trains per day could probably be tolerated, increases in the Rojo Caballos mine production and shipments from the other mines would soon make crossing impacts intolerable, particularly at Glendo and Torrington.

3 — 3. Rail shipment must be studied more thoroughly and measures developed to mitigate railroad/highway crossing impacts.

2 Additional discussion of the railroad system and potential impacts has been added to chapters 3 and 4. The probable route of the initial shipments of coal is south through Cheyenne rather than southeast through Torrington. As shown in table I-1, initial shipments of coal will involve 5 trains per week, not 7 trains a day. At peak production, the maximum rail traffic would be 4 trains a day each way. The concerns you have raised for communities along both major railroad lines are potential impacts which may be associated with increased coal train traffic. We have generalized the types of expected intra-regional impacts since the potential shipment of coal from this mine is not completely known.

3 Impacts from the increased rail traffic, particularly the cumulative impacts from all the mines, could be severe to many communities along the Burlington Northern and the Chicago Northwestern. Since there is limited information at present on the exact location of increased railroad traffic, OSM has not included specific mitigation measures in its analyses. We will, however, bring your concerns to the attention of the Industrial Siting Council.

DANIEL N. MILLER, JR
DIRECTOR AND
STATE GEOLOGIST
DEPUTY DIRECTOR AND
STAFF GEOLOGIST
GARY B. GLASS
STAFF GEOLOGISTS
RODNEY H. DE BRUIN
W. DAN HAUSEL
DAVID R. LAGESON
ALAN J. VER PLOEG
TECHNICAL EDITOR
DAVID A. COPELAND

THE GEOLOGICAL SURVEY OF WYOMING
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BAYARD D. REA, CASPER

October 21, 1980

Mr. Dick Hartman
State Planning Coordinator
Wyoming State Clearinghouse
2320 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Hartman:

Gary Glass has reviewed the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming (I.D. No. 80-148). His comments are attached.

If your office or any other state agency would like us to re-examine any part of this draft for any reason, please feel free to ask.

Sincerely,

Rodney H. De Bruin

Rodney H. De Bruin
Staff Geologist

RHDB:eb
Enclosure

Geology--Interpreting the past to provide for the future

DANIEL N. MILLER, JR.
DIRECTOR AND
STATE GEOLOGIST
DEPUTY DIRECTOR AND
STAFF GEOLOGIST
GARY B. GLASS
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RODNEY H. DE BRUIN
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MEMORANDUM

To: STATE PLANNING COORDINATOR

From: Gary B. Glass, Deputy Director

Subject: Proposed Mining and Reclamation Plan, Rojo Caballos
Mine (Draft OSM-EIS-3)

Date: October 21, 1980

Page I-3, 3rd paragraph

4 Production from existing mines in the Powder River Basin of Wyoming was only 45.9 million tons in 1979, not the 103 million tons referred to in the second sentence of the EIS. Total production from all of Wyoming was only 71.2 million tons in 1979. In 1980, Powder River Basin production probably will not exceed 58-59 million tons. Statewide production shouldn't exceed 83 million tons in 1980.

5 Although the U. S. Department of Energy identified production goals on the scale of those given in the last half of this 3rd paragraph, no one really believes that Powder River Basin production will even come close to DOE's production goals. For this reason, it escapes me why these goals are presented here. I have enclosed a recent coal production estimate that is probably closer to actual production expected by 1985 and 1990. Admittedly, the 1990 production estimate may be somewhat conservative.

Geology--Interpreting the past to provide for the future

4 The sentence has been changed to reflect the information you contributed.

5 Your information has been added to the paragraph.

THE GEOLOGICAL SURVEY OF WYOMING
Daniel N. Miller, Jr., State Geologist

PUBLIC INFORMATION CIRCULAR No. 12

WYOMING COAL PRODUCTION AND SUMMARY OF COAL CONTRACTS

by
Gary B. Glass

Prepared in cooperation with the Minerals Division, Wyoming
Department of Economic Planning and Development and the Region 8
Office of the U.S. Department of Energy

LARAMIE, WYOMING

1980

Table 4. Coal Forecast in Millions of Tons by County with State Total.[1]

	Campbell	Carbon	Sweetwater	Lincoln	Converse	Sheridan	Uinta	Johnson[2]	Fremont	Hot Springs	State Total	Percentage below contracted tonnage[3]
1979	40.1	13.1	7.2	5.0	3.3	2.5	-	-	NEG[4]	NEG[5]	71.2	5%
1980	54.4	12.6	9.0	5.0	3.0	2.0	-	-	-	"	86.0	12%
1981	64.6	13.0	10.5	5.0	3.0	2.5	-	-	-	"	98.6	9%
1982	76.6	12.6	11.0	5.3	3.3	2.5	-	-	-	"	111.3	5%
1983	88.0	13.3	11.6	5.8	3.3	2.8	0.5	-	-	"	125.3	5%
1984	103.8	13.4	12.3	5.8	3.3	3.0	1.0	-	-	"	142.6	-
1985	112.4	14.4	16.0	5.8	4.1	3.1	1.0	-	-	"	156.8	-
1986	118.4	15.4	16.5	5.8	4.1	3.1	1.5	-	-	"	164.8	-
1987	122.0	16.4	16.0	5.8	4.1	3.1	1.5	-	-	"	168.9	-
1988	123.6	17.6	16.0	5.8	4.1	3.1	1.5	-	-	"	171.7	-
1989	124.1	18.4	16.0	5.8	4.1	3.1	1.5	0.5	-	"	173.5	-
1990	124.6	18.9	16.0	5.8	4.1	3.1	1.5	1.5	-	"	175.5	-
Probable 1990 Mine Capacity[6]	198.9	22.4	22.2	5.8	13.3	4.3	5.0	4.5	NEG	NEG	276.4	
Possible 1990 Mine Capacity[7]	219.9	25.7	27.3	9.7	18.3	5.3	5.0	4.5	NEG	0.7	316.4	

---

[1] Geological Survey of Wyoming (January 1980)

[2] Hinges on completion of Texaco's coal gasification project at Lake Oe Smet

[3] 1979-1983 forecasts are below contracted amounts to offset expected transportation delays and energy conservation measures

[4] Negligible

[5] About 10,000 tons per year

[6] Only includes mines from which production is anticipated

[7] Includes all proposed mines, regardless of status

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Water Development Commission

BARRETT BUILDING TELEPHONE: 307-777-7626 CHEYENNE, WYOMING 82002

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Robert H. Johnson
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Kenneth Kennedy
William J. Kirven, Sr.
James Noble
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Willard C. Rhoads
Nelson E. Wren, Jr.

November 7, 1980

TO: Wyoming State Clearinghouse

FROM: Jon Wade, Geohydrologist JW
Water Development Commission

RE: Review and Comments on the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming

State Identifier Number: 80-148

Attached are comments on the Rojo Caballos draft EIS. This agency concurs with the OSM and USGS selection of alternative A as the preferred alternative: "approval of the mining and reclamation plan with stipulations required by State and Federal law and a stipulation to mitigate socio-economic impacts." If this agency can be of any future service please contact us.

JW/vsb
Enclosure

6	Page IV-1 The report states: "impacts to the physical and biological environment due to the Rojo Caballos mine would not be significant, because they would not: . . . be significant in cumulation with impacts from other mines in the area;" The fact exists that the coal in an area approximately 80 miles long by 5 miles wide is either being mined or is proposed to be mined. Once reclaimed the coal aquifer will be replaced by material of considerably lower porosity and permeability, thereby creating a "barrier", relatively speaking, to groundwater flow. What will be the regional impact on groundwater due to this large scale modification of the coal aquifer?	The reclaimed aquifer will probably have characteristics similar to the overburden aquifer, which did have lower porosity and permeability than the coal. However, because the mining is along the outcrop edge of the coal aquifer, which was partly dry, there should be little barrier effect. The recharge to the coal aquifer actually might be higher because of a higher head in the reclaimed aquifer than in the original coal aquifer, without a clay barrier to stop leakage into the coal. Therefore, the regional impact due to modification of the coal aquifer would not be significant and, in fact, the groundwater aquifer recharge might be higher after mining.
7	Page IV-8 The report states: "The increased sediment discharge would be trapped in sedimentation ponds unless a storm greater than the 25 year, 24 hour storm occurred." Because the proposed mine will be in operation for 24 years it seems highly likely that the 25 year, 24 hour storm event will occur or be exceeded at least once during this period. What will be the consequences should this occur? Perhaps the sedimentation ponds should be designed to withstand a larger storm event. Further, after the area is reclaimed but before vegetation becomes well established, it seems probable that considerable erosion and sedimentation will take place. What types of sediment control practices will be incorporated?	Statistically, there is about a 65-percent chance of the 25-year, 24-hour event or larger occuring in the 24-year life of the mine. Should this happen, then the impacts downstream would depend on whether the pond is full or empty when the storm occurs. If the pond is empty of water and sediment, then the impacts downstream would probably be less than would have occurred naturally because of the trapping effect of the pond. If the pond was full when the storm occured, then the impacts downstream would be the same as or greater than would occur under natural conditions. Impacts would be much greater if the dam is breached. The sediment ponds will be retained until reclamation is completed. The regulations do not require a larger size pond and there are no compelling reasons to stipulate this.
8	On page viii the report states: "The lowered ground water levels due to mining of the overburden and coal aquifers and to pumping water from a deeper aquifer . . . would only affect the cost of pumping the water." On page IV-9 the report states: "The lower water levels may necessitate deepening some of the 203 wells in the area." Which of these statements is true? It should be emphasized that OSM regulation 816.54 requires the applicant to replace the water supply where the supply has been affected by contamination, diminution, or interruption resulting from the applicants surface activities.	Text has been changed.
9	On page III-4 the report states: "A single sample (60-65 feet) in one borehole contained amounts of arsenic (3.14 ppm) and zinc (104ppm) considered deleterious to plant growth." On page IV-9 the report states: "Although water quality in the reclaimed overburden would decrease, it would remain acceptable for livestock and wildlife use." It goes on to say: "that water in reclaimed overburden has a small increase in calcium, sulfate, magnesium, and TDS compared to premining conditions." Why wasn't the potential zinc and arsenic toxicity problem elaborated on further? Could this have an adverse impact on reclamation attempts? What types of adverse impacts could occur if ground water becomes contaminated by toxic substances in the overburden?	Traces of arsenic and zinc were detected at only one test site. Stipulation 5 (now 3) requires Mobil to bury all toxic wastes above the water table. For this reason the chance of mining contributing arsenic and zinc as well as other toxic material will not be significantly greater than the premining situation. It does not appear that zinc and arsenic toxicity will have an adverse impact on reclamation attempts nor will the postmining ground water system contain significantly greater amounts of zinc and arsenic even under the most adverse situation which might occur.
10	On page III-4 the report states: "Flow in the aquifers is generally eastward, with the shallower aquifers discharging to Caballo Creek and the Belle Fourche River." On page IV-9 the report states: "Mining at the Rojo Caballos mine site is not expected to diminish the flow of water to either Caballo Creek or to the Belle Fourche River. This conclusion is based on the following evidence: 1) all available data show that the ground water in the vicinity of the proposed mine is not connected to the alluvial valley floor downstream (Caballo Creek) nor to the alluvial valley floor south of the mine site (Belle Fourche River);" Which of these statements is true? If the aquifers are connected to the streams, how much will streamflow be diminished due to mining and how long will it take for them to return to pre-mining levels once reclamation is complete? Will there be any other adverse impacts either in the area or downstream, as a result of mining related streamflow diminution? (i.e: destruction of alluvial valley floors)	The discharge to Caballo Creek and the Belle Fourche River is upstream of the area to be mined by Mobil. Page III-4 describes regional aquifer conditions, whereas page IV-9 describes the specific mine area. There should not be a noticeable diminution of streamflow downstream of the mine due to the Rojo Caballos mine.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

State Engineer's Office

BARRETT BUILDING
CHEYENNE, WYOMING 82002

November 7, 1980

M E M O R A N D U M

TO: Richard Hartman, State Planning Coordinator

FROM: Michael C. Penz, Croundwater Section

SUBJECT: Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming - State Identifier Number: 80-148.

Attached is the State Engineer's Preliminary Opinion of the Water Supply and Water Yield Analysis for Mobil Oil Corporation's Rojo Caballos Mine which was prepared for the Wyoming Industrial Siting Council. This opinion embodies any comments we have with regard to this project.

ht

cc: George L. Christopulos
State Engineer

STATE ENGINEER'S PRELIMINARY OPINION OF THE

WATER SUPPLY AND WATER YIELD ANALYSIS

FOR MOBIL OIL CORP'S ROJO CABALLOS MINE

INTRODUCTION

Pursuant to the provisions of the Industrial Development and Siting Act (W.S. 35-12-106, 1977) a review has been prepared on the availability of ground water for Mobil Oil Corporation's Rojo Caballos Mine located approximately 17 miles Southeast of Gillette in Campbell County. The analysis contained in this review is based on data supplied by Mobil Oil Corporation, published information, and public records.

The proposed Rojo Caballos Mine will be located on 5,815-acre permit area which includes a 4100-acre Federal Coal lease. The mine will be adjacent to three other proposed or active coal mines; Consol's proposed Pronghorn Mine to the northwest, Amax's active Belle Ayr Mine to the north, and Sun Oil Co's active Cordero Mine to the south. Mining will be conducted by truck-shovel mining methods simutaneously from two open pits for most of the 24-year life of the mine.

At the planned production rate of 15 million tons per year average water consumption at the Rojo Caballos Mine would be catagorized as follows:

Potable	16,000 gallons per day or 18 AF/year
Plant Consumption 1)	47,000 gallons per day or 53 AF/year
Dust Suppression 2)	250,000 gallons per day or 280 AF/year

1) Equipment cleaning and dust abatement in the shop, truck dump, coal crushers, train leadout facility, and slot storage.

2) Water required for dust suppression on haul roads will be dependent on road lengths, weather, and dust conditions.

Most of the water for the above uses will be obtained from four planned wells approximately 1500 feet deep, to be located in the vicinity of the plant site. The four wells, Permit No's U.W. 48422, U.W. 48423, U.W. 48424, and U.W. 48425 are permitted for a total combined capacity of 500 gallons of water per minute with the water being stored in a 480,000 gallon capacity raw water storage tank. Two separate tanks are supplied from this tank; a 20,000 gallon potable water tank and a 24,000 gallon tank for haul road maintenance. The 480,000 gallon main tank also holds a permanent reserve of 120,000 gallons for fire protection.

The company also expects to initially produce approximately 30,000 gallons of water per day from the coal pits. By the fourth year of mining they expect to be mining a saturated zone in the coal which will increase pit production to 150,000 gallons per day. This should later decrease back to the 30,000 gallons per day. Due to water quality considerations water produced from the pits will be either loaded directly into watering trucks for dust control or pumped into holding ponds for settling out the suspended solids.

GEOLOGY

The Rojo Caballos Mine will be located approximately 17 miles southeast of Gillette, Wyoming in the eastern part of the Powder River Basin. The company plans to mine an area approximately two miles wide by five miles long in T.48N., R.71W. The mine area is bordered on the north by Amax's Belle Ayr Mine, on the south by Sun Oil Co's Cordero Mine, and on the west by Consol's planned Pronghorn Mine. Carter Mining Co's Caballo Mine is two and a half miles north of the permit area, and lies just northeast of the Belle Ayr Mine.

The mining site is situated on the eastern flank of the Powder River Basin at the outcrop of the upper part of the Fort Union Formation. Most of the surface drainage in the permit area is north to Caballo Creek, a tributary of the Belle Fourche River. A small area along the southeast portion of the permit area drains southward directly to the Belle Fourche River. No perennial or intermittent streams cross the permit area.

The Wasatch Formation of Eocene age, underlies the western three fourths of the permit area, while the Fort Union Formation of Paleocene age outcrops in the eastern part. Both formations are characterized by interbedded sandstone, siltstone, claystone, and shale. The Wasatch has a more variable lithology than the Fort Union and lenses and channels of sendstone are common. Each formation contains coal, but the coal beds are generally thicker and more continuous in the Fort Union Formation.

In this part of the Powder River Basin the top of the Roland Coal bed is generally considered to be the contact between the Fort Union and the overlying Wasatch Formation. In the Rojo Caballos Mine area the Roland Coal bed and the Smith Coal bed have come together forming what has been named the Wyodak Coal bed (or Wyodak - Anderson Coal bed). The seam dips gently to the west at less than one degree to a maximum of 1.5 degrees and averages approximately 65 feet in thickness throughout the permit area. The coal is readily combustible and clinker (scoria) deposits formed by the natural burning of the coal bed are widespread. This burning has baked the overlying rock to form the distinctive brick-red clinker deposits that are resistant to weathering and commonly form ridges and buttes in the Gillette area.

HYDROLOGY

The clinker deposits, coal beds, and the sandstone units of the Wasatch and Fort Union Formations comprise the water bearing formation of the shallow ground water system in the Rojo Caballos permit area. The siltstones, claystones and shales range from aquitards to aquicludes. Due to local topographic effects and the heterogeneity of the Wasatch and Fort Union lithologies, ground water occurs under a wide range of hydrologic conditions. These conditions include perched or semi-perched aquifers to confined aquifers. However, there appears to be some degree of vertical interconnection between all hydrogeologic units.

The main water supply for the mine will be developed in a sequence of thick sandstone beds with some minor interbedded shale in the lower part of the Fort Union Formation (Tullock member). This aquifer is located approximately 1,100 to 1,800 feet below land surface in the vicinity of the proposed water supply wells. Due to the lenticular nature of the individual sands and the probable interconnections, this sequence is considered to be a single aquifer.

HYDROLOGIC PROPERTIES

The hydrologic properties of the water bearing strata are inherently related to the origin and geologic structure of the materials. The sandstones in the overburden have low to very low transmissivities, indicative of consolidated rocks with very low primary and secondary permeabilities. The range of estimated transmissivities from a step - drawdown pumping test and from falling head permeability tests was from 89 to 729 gpd/ft. Storage coefficients in the sandstones were assumed to be about 10.-4.

A step drawdown pumping test utilizing two observation wells was performed in the coal aquifer. This test yielded transmissivity values ranging from 2,078 gpd/ft. to 7,000 gpd/ft. The storage coefficient was calculated at $7x10^{-4}$. At another site in the permit area a 48 hour constant discharge pumping test gave transmissivity values to 3040 gpd/ft. to 3 570 gpd/ft. with storage coefficients ranging from $3x10^{-4}$ to $5x10^{-4}$. Generally, the storage coefficients of the coal seam indicate confined conditions, however, locally unconfined conditions occur near the outcrop. Near the eastern end of the permit area the coal seam is dry or only partially saturated. The coal outcrop north and south of the permit area constitutes discharge areas for this aquifer where it crosses Caballo Creek and the Belle Fourche River.

The sub-coal sandstone untis have not been investigated in detail. However, the mines north and south of the permit area each have one or more wells completed in the sandstone interval in the lower part of the Fort Union Formation. Two wells at the Belle Ayr Mine and one well at the Caballo Mine are producing 120 gpm to 150 gpm from this sequence of sandstones. To the south of the permit area, Sun Oil Company has two shallower wells that produce 75 gpm. All of these wells are located within three and one half miles of the Rojo Caballo Mine. A production test on the Plant #2 Well, Permit No. U.W. 36441, at the Belle Ayr Mine indicated that there should not be significant interference between wells located at intervals greater than 2000 feet.

WATER SUPPLY AND WATER AVAILABILITY

There are two sources of water supply for the Rojo Caballo's Mine. These sources are:

1) The four wells to be drilled to the lower Fort Union Formation - Mobil Rojo #1, #2, #3, & #4, Permit No's U.W. 48422, U.W. 48423, U.W. 48424, and U.W. 48425.

2) Seepage from the coal seam and overburden that will accumulate in the open mine pits -- permits not applied for to date.

The four wells are permitted for 125 gpm each or a potential combined yield of 720,000 gallons per day, while pit inflows may yield an additional 30,000 to 150,000 gallons per day. These two sources have the potenial of producing 2.4 to 2.8 times the quantities of water anticipated at maximum usage of the 15 million tons per year mine.

MITIGATION OF WATER RIGHTS CONFLICTS

Ground water inpacts will be reflected by slight water level declines in and adjacent to the permit area. The water level drawdown patterns attributable to strip mining will be irregular, depending on formation characteristics and on the individual mining sequences of several operations. Drawdown impacts grater than 10 feet will not occur more than 3-4 miles from mining operations. The Gillette Area Ground Water Monitoring Organization, (GAGMO), a comrehensive industry wide monitoring organization, is currently being formed to monitor the cumulative hydrologic impacts of coal mining in the northeastern Powder River Basin. Consistent with Wyoming water laws, Mobil Oil Corporation will mitigate affects to the water supply to valid water appropriators should those appropriators water supplies be affected by Mobil Oil Corporation's Rojo Caballo Mining operation.

CONCLUSION

Based on the foregoing analysis it is the opinion of the State Engineer that sufficient water supplies are available at the Rojo Caballo Mine to support the proposed facility.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Game and Fish Department

CHEYENNE, WYOMING 82002

EARL M. THOMAS
DIRECTOR

November 24, 1980

EIS L2/69 OSM-EIS-3
Proposed Mining and
Reclamation Plan
Rojo Caballos Mine
Campbell County, WY.

Mr. Robert Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

Please consider the following comments and recommendations in developing the Final EIS for this project.

1 P. II-3 - We completely agree with planting only native species of plants on reclaimed sites. While there are some introduced plant species which are valuable to wildlife, allowing their use opens the door to use of many other undesirable introduced species.

2 P. III-11 - Bald eagles from the roost near Rojo Caballos do not use fish very much, if at all. Analysis of casts from that roost by Game and Fish Department personnel showed that wintering bald eagles in Campbell County use winter-killed sheep, road-killed or naturally killed rabbits, and winter-killed and road-killed antelope and mule deer. Fish and ducks are not used because there is little or no open water in the county in the winter.

3 We prefer that authors of impact statements not use the Audubon Blue List as a source for decisions on species "believed to be declining" regionally. Where are the data that indicate a decline in numbers of these species in Wyoming? As a matter of fact, the red-headed woodpecker has expanded its range in Wyoming, the sage

1 The stipulation on page II-3 was in error and has been changed, since selection of a species for reclamation is based primarily on the utility of the species for the proposed post-mine land uses. However, introduced species may be substituted for native species only if approved by the regulatory authority.

2 We agree. This was stated on page III-11 of the draft environmental impact statement.

3 The Audubon Society's Blue List was a reference to species declining regionally. The Wyoming Game and Fish Department's information regarding the status of these birds in Wyoming (see Wildlife section, chapter III) has been included in the text.

grouse is stable except in areas like Campbell County where mining, oil and gas activity, and sagebrush control will or have caused declines, and numbers of ferruginous and Swainson's hawks fluctuate annually.

4 What were pronghorn numbers in winter? Why are there no data since 1976. Under state regulations, 5-year-old data are too old. There have been data collected more recently. What other species occur on this site. Where and in what habitat types are those species found on site? There is no information here on habitat use by wildlife, or the importance of various features of the site to wildlife. This description is cursory at best.

Winter numbers of wildlife are important on a site indicated as a winter concentration area for pronghorn. We do not see those numbers here. As a matter of fact, there are no seasonal data, and little quantification of wildlife information.

5 Section III - There is no discussion of recreation, yet the impact of new mining employees and employees of support facilities on wildlife-oriented recreation has been extremely large. Because of access problems, many Campbell County residents hunt out of the county. All moose, sheep, and elk hunters and most fishermen recreate out of the county. We suggest that the applicant explore the feasibility of providing recreational hunting and fishing opportunities by creating fish and wildlife supporting impoundments at the earliest possible time in the reclamation effort.

In 1972, 7,779 licenses of all types were sold in Campbell County. In 1979, there were 12,618 licenses sold in the country, a 62% increase in demand for hunting and fishing opportunity in seven years, even if those who bought licenses in other counties are excluded. Some employees of mines in Campbell County live in other counties (Crook, Johnson), so these figures are probably underestimated.

6 P. IV-1 - We consider waiting 40 years after completion of reclamation to reestablish wildlife at premining levels on this site to be a serious impairment of wildlife use of the site (see p. viii). This means that, including the 24 year life of the mine, it will take at least 64 years to restore premining wildlife use to this site. This is unacceptable without some form of mitigation.

4 Text has been changed to include data on pronghorn antelope. Populations of other species are expected to be minimally impacted and are not discussed in this document.

5 Recreation is discussed in chapter III. Following reclamation, 6 ponds would remain permanently on the permit area. Bullrush and pond weeds will be collected locally and reestablished in the new reservoirs. Cattail seed and cottonwood trees will also be planted in the zone. Mobil states that the availability of water on the permit area after mining would be better than premining as water sources will be available year around to pronghorn and will be spaced appropriately, helping to more evenly distribute range use by both wild and domestic animals. Reservoirs will also provide better habitat for waterfowl and shorebirds. All reservoirs will be constructed in accordance with the criteria of Wyoming DEQ Guideline No. 5.

6 This point has been clarified in the text. The 40-year period begins with the start of reclamation on the minesite. Table IV-1 refers to the impact on vegetation diversity after the start of reclamation on the minesite.

7	P. IV-2 - A 64 year wait to restore wildlife on the minesite is not a "temporary" loss of wildlife.	7	See reply to comment 6.
8	P. IV-3 - What "hunting" mortalities are considered here? Legal kill? Poaching?	8	Table IV-1 on page IV-3 has been revised.
9	P. IV-1-4 - We do not agree with the meathod of determining the significance of the impacts of this project. Since the EIS is site-specific, the significance of the impacts should be determined on a site-specific rather than on a national basis. The document should also present a more complete accounting of the cumulative impacts of the project to the site and to the region.	9	The impacts discussed in the text and Table IV-1 are on a site specific and regional basis. The introduction to chapter IV has been revised to reflect this. For further discussion of cumulative regional impacts, see the final environmental impact statement, Eastern Powder River Coal, prepared by the U.S. Bureau of Land Management, 1979a.
10	P. IV-4 - Considering the topography surrounding this mine site, the similar disturbance of a 400-square-mile area around the region, and the importance of topography in creating suitable microclimates for the diversity of plant species needed by wildlife, as well as the benefit of windless lee slopes to wintering wildlife, how can this document maintain that there will be no significant impacts on topography?	10	Loss of shelter from wind on lee slopes is a valid concern. However, reclamation practices are limited under SMCRA regulations to restoring slopes to enhance stability of replaced topsoil, thereby achieving the postmining land use. The impacts to the topography of the minesite are called insignificant because they would not violate any legal or ad hoc standards identified by the Council on Environmental Quality, nor would they markedly affect the usability of the area. However, in table IV-1 we did point out that impacts to the minesite would be major and that the site would be part of a large area receiving similar impacts. Drainage channels will be recreated and thus some topographic relief will be reestablished. The cumulative topographical effects are not known. The environmental impact statement also indicates that cumulative impacts to wildlife would occur (labeled a "moderate impact" on table IV-1).
11	P. IV-8 - Will the six larger stock ponds be distributed adequately enough to restore the spacing of water sources on-site prior to mining without excessive movement by livestock or wildlife? Will concentration of livestock and wildlife at 6 rather than 12 water sources cause overuse of forage near those water sources? What will this do to reclamation efforts? Unless these ponds restore the same amount of water, what assurance is there that there will be an adequate water supply? Ponds should be partially fenced to exclude livestock and partially planted with emergent vegetation. Otherwise, trampling will occur, the water will be fouled, and wildlife, particularly birds, will not use the site very much.	11	See response to comment 5. Also see stipulations 25 and 26.
12	P. IV-9 - Hydrology. The section on groundwater provides evidence that the proposed mine will not diminish flows in either Caballo Creek or the Belle Fourche River, and includes a very good groundwater drawdown analysis.	12	Thank you for your comment.
13	P. IV-16 - What vegetation was present around existing stock ponds before mining? Will any of this be replaced?	13	Site-specific vegetation data immediately surrounding existing pond sites is not available. Refer to comment 5 for a description of the herbaceous vegetation to be established at the postmine pond sites.
14	Pp. IV-16-17 - The statements "This plan would generally establish wildlife habitat..."; "Revegetation of the area would be designed	14	See response to comment 6.

to meet some of the requirements of wildlife..."; and "It is expected that wildlife populations would return to normal following reclamation..." are misleading. Our evaluation of the information presented indicates that reclamation of the area for wildlife will not occur for 60-70 years and there is no assurance that the site will be returned to its present condition.

15 P. IV-17 - How many antelope use this site in winter? The company has collected data, so they should be available. Hunting pressure referred to here is poaching, not legal hunting. The statement that road kills and "hunting" pressure could impact antelope more than mining is not supported by data. The fact that road kills and hunting do not remove habitat as does mining should be considered in comparing the long-term effects of these impacts.

There is no antelope population on active and planned coal mines in this region. The population is the Pumpkin Buttes antelope herd. What is the cumulative impact of this mine and all of the other coal mines within the boundaries of this herd?

16 Is the documentation for the use of natural invasion of sagebrush on this site? How long will it take to reestablish sagebrush on this site?

17 Have Eng and Tate succeeded in moving a lek, or have they attracted birds to a display site? It is a well-documented fact that sage grouse can be induced to display in an opening created in dense sagebrush and that sage grouse can be attracted to grouse decoys accompanied by taped sounds of displaying grouse. However, many of these are juvenile birds, who move from ground to ground because they are subordinate. While moving leks has been claimed, no lek has really been moved until it has been in existence for several years and successful breeding has occurred. It is much too soon to be as optimistic as this document states.

This Department is not going to transplant sage grouse to a site where there is insufficient habitat. Besides, if sage grouse are only going to be displaced by mining, there should be an ample number of birds nearby to occupy the reclaimed area.

The statement that herbivores are attracted to reclaimed areas is true. However, use of green shoots of grasses in spring and early summer does not indicate that habitat has been replaced. Most

15 See response to comment 4 regarding antelope numbers in winter. The text has been clarified with regard to impacts on antelope. See the final environmental impact statement, Eastern Powder River Coal (U.S. Bureau of Land Management, 1979a) for additional discussion of regional impacts.

16 On-site documentation of natural invasion is not necessary since it will supplement a transplanting program utilizing tree spade and tubling transplants that will approximate premining shrub densities. Sagebrush on reclaimed sites is expected to attain heights appropriate for utilization by sage grouse in 5 to 10 years after planting.

17 See response to RPF Ecological Associate's comment 2 for additional information on the sage grouse lek. Some preliminary success has been reported by Eng and Tate and the text does indicate that success in moving a lek is "not assured." Mobil is proposing to use the best technology currently available to mitigate impacts from mining to this group of sage grouse.

18	herbivores in this area are browsers, consuming woody plant material for much of the year, particularly in winter when shrubs are available above the snow and other plants are not. Deer and antelope indicated as invading mine sites because of grass on reclaimed areas get no benefit from such areas in fall and winter. This section indicates that reclaimed grasslands are great areas for antelope and deer. That is untrue most of the time, especially during severe weather, the critical time for those animals.	18	The text has been revised to reflect these concerns.
19	Migratory waterfowl will not spend much time on ponds with no cover. We are not aware of any documentation for the statement that animal distribution and movements will be the same after mining as they were before.	19	We agree. See response to comment 5. The text has been revised to reflect the concern regarding animal distribution and movements.
20	P. IV-24 - "Within 10 years after reclamation, rangeland and wildlife use would return to near premining levels." P. viii says 40 years. P. IV-29 notes that reestablishment of sagebrush for antelope could take longer than 30 years after mining, a total of 54 years. "Planned reclamation is expected to return the disturbed wildlife habitat to similar or better quality relative to premining land use." Nothing in this document supports this statement. Topographic diversity will be severely reduced, vegetative species diversity will be severely reduced, the number of water sources will be halved, and there will be little or no vegetation around stock ponds. This is not "similar or better" quality habitat.	20	The text has been revised to reflect these concerns.
21	P. IV-26 - "Impacts to recreation would be insignificant." This is incorrect. See comments on Section III above.	21	See response to comment 5.
22	P. IV-29 - This section says that "introduced as well as native grasses and shrubs" will be planted on the mine site. P. II-3 says that the seed mixture should not include introduced species. Which is true?	22	The text has been revised to allow the use of approved introduced species.
23	Pp. IV-29, 30 - "Because reclamation would result in a wildlife carrying capacity equivalent to that which presently exists...there should be no long-term adverse impacts on recreation." The wildlife carrying capacity on this site is not known, but it certainly will not be as high following mining--not even close. We have already pointed out that development brings in new people who compete for hunting and fishing, causing crowding in hunting and fishing areas, reduced hunter	23	The text has been changed to read "habitat" instead of "carrying capacity."

and fisherman success, and reduced opportunity to draw limited quota licenses. This is impact on recreation.

24 Appendix A - We find the applicant's proposal to mitigate wildlife problems to be very good. However, there should be more than just big sagebrush in the shrubland revegetation mixture.

25 Appendix B - Stipulation 24 is not consistant with an earlier stipulation saying that no introduced species will be planted on the reclaimed areas.

26 Stipulations 30 and 31 - One of these should include submission of a discussion of species and amounts of vegetation to be placed at or near these ponds and how plants will be protected from grazing and trampling.

27 This document lacks data, though data were available from this Department and the company. We suggest that available wildlife data be used in developing the FES, and in evaluating the impacts of the project on the wildlife resource.

Please contact us if we may be of further help on this project.

Sincerely,

W. Donald Dexter

W. DONALD DEXTER,
ASSISTANT DIRECTOR,
WYOMING GAME AND FISH DEPARTMENT

WDD:HBM:mlr

cc: Game Division
Fish Division

24 Stipulation 18 satisfies this concern.

25 The text has been revised. See chapter II, Alternative A.

26 See responses to comments 5 and 13.

27 All data provided by Mobil were reviewed in preparation of this document. The final environmental impact statement is based on those data collected by Mobil from September 1979 to September 1980, which were not available at the time the draft environmental impact statement was prepared.

THE STATE OF WYOMING
EXECUTIVE DEPARTMENT

ED HERSCHLER
GOVERNOR

Office of Industrial Siting Administration

SUITE 500 BOYD BUILDING CHEYENNE, WYOMING 82002 TELEPHONE: 307-777-7368

December 4, 1980

Don Crane
Regional Director
Office of Surface Mining Reclamation and Enforcement
Brooks Towers
1020 15th St.
Denver, CO 80202

Dear Mr. Crane:

I have recently commented on proposed stipulations to be included in two separate mine plan approvals. My intent in providing these comments was to ensure that OSM was aware of, and did not conflict with permits recently issued by the Industrial Siting Council. However, I feel that it is important to stress to you that these comments were not intended to discourage OSM from taking an active role in the mitigation of socioeconomic impacts associated with surface mining in Wyoming. The jurisdiction of the Industrial Siting Council over surface coal mines is limited to only a small number of the new, relatively large surface mines. However, the socioeconomic impact problems result from the cumulative effect of many mines. Therefore, our efforts toward alleviating socioeconomic impacts are constrained by the limits of our jurisdiction.

For projects over which we do have jurisdiction, I believe that every effort should be made to ensure that duplicative or conflicting requirements are not imposed. Efforts to achieve this goal appear promising to date, although they have occurred after stipulations have been proposed rather than before. I am confident, however, that in the future your staff and mine can work together to resolve potential duplication or conflicts before they arise.

If you should have any questions regarding my position with respect to this matter, please feel free to call. I look forward to working with you and your staff in the future.

Sincerely,

Richard C Moore

Richard C. Moore, P.E.
Director

RCM/lp

cc: John Hardaway, OSM

Thank you for your comments.

City of Gillette
P.O. Box 3003 Gillette, Wyoming 82716
Phone (307) 686-5200

November 12, 1980

Robert Schueneman
Office of Surface Mining Reclamation
and Enforcement
Brooks Tower
1020 15th Street
Denver, CO 80202

RE: Comments - Rojo Caballos Mine, Draft Environmental Impact Statement.

Dear Mr. Schueneman:

The statement is generally well done, concise and very readable. We support Alternative A, being approval with stipulations. However, the stipulations need more work.

The statement socio-economic sections generally reflected the same mitigation package as seen in industrial siting application. At that time, the City testified as to several faults in the package and apparent discrepancies in the impact assessment methods used. Mobil had time to reconcile differences, but we haven't had any further contact.

We request that the final environmental impact statement contain the following changes.

1 1. Require application participation in not only monitoring of health and law enforcement functions, but in a complete and comprehensive, multi-year program of analyzing and projecting the economic base and housing market.

1 We agree that a multi-year analysis of the economic base and the housing market would be beneficial to the city of Gillette. If effectively implemented, we believe that this type of analysis could be prepared by the Industry Committee of the Campbell County Chamber of Commerce as required by the Wyoming Industrial Siting Council in the permit issued to Mobil Oil Company. (The permit condition requires Mobil to financially assist in the monitoring and analysis effort.)

2 2. The proposed busing program should be made more sepcific and should designate Gillette as the primary destination.

3 3. The applicant should be required to facilitate the construction of 250 additional mobile home spaces. The vague proposal to reserve existing spaces does no more than give their employees an advantage over the rest of the community. Reserving existing spaces reduces the housing availability.

4 4. The applicant should be required to facilitate the construction of additional housing. The amount of housing should be realistically related to the incremental increase in demand generated by this facility. We estimate an increased demand of 1000 units.

5 5. The statement on page IV-20 that local developers plan to build 10,000 new units is misleading and implies that there is no need for company participation in housing supply. Housing supply has and will continue to respond to the market. The participation by companies is not sought to increase quantity and timeliness of new housing. Gillette has assumed a massive risk in incurring debt to provide urban level services in advance of incoming populations. The companies, likewise, have a shared responsibility to help the city retire that debt. This can be met through a variety of mechanisms, many with little or no net cost to the companies.

6 6. An indication should be made to show there will be sufficient local decision making authority to make commitments.

7 7. References to local population should be updated. The April, 1980 Gillette population was 13,617.

2 Mobil has agreed to designate Gillette as the destination/origin of the busing program (oral communication, Laverna Smith, December 11, 1980). The text has been changed to reflect this commitment. (See Socioeconomic section, chapter III).

3 Mobil has made a commitment to OSM (oral communication, Laverna Smith, December 11, 1980) to monitor the effectiveness of their employee housing mitigation program. Also, the comprehensive monitoring program to be established by the Industry Committee of the Campbell County Chamber of Commerce should provide information on housing problems as they develop in the Gillette area. It is recommended that the city of Gillette, Mobil, and the Wyoming Industrial Siting Council work together to solve any problems with the housing mitigation program.

4 OSM calculated that the housing demand generated by the Rojo Caballos mine would be 845 units. This number is based on the mine work force and the secondary population it would generate. The difference of 155 units is probably a result of different methods in calculating population generation and housing demand. For further information see: A socioeconomic assessment of the Rojo Caballos mine, an unpublished report available at OSM, Denver, Colorado.

Our limited analysis did not show that housing availability (based on 1979 housing statistics) would be a potential problem. However, this is not to say that, in the future, housing supply and demand will stay the same. If the demand for housing changes in the next few years, the monitoring program established by the Industry Committee of the Campbell County Chamber of Commerce would provide adequate notice to the city and Mobil. At that time, there may be a need for companies to become more involved in providing housing.

5 The text has been changed in chapter IV to reflect the concerns you have expressed for efficient use of community services by residents associated with new coal mine developments.

6 OSM has encouraged and will continue to encourage companies to meet with local officials to work out any problems associated with the impacts of proposed mining operations.

7 The population estimate, used by OSM, of 13,400 is a projection from base year 1978. Although the difference between the OSM figure of 13,400 and the city figure of 13,617 is 217, it should not reflect a substantial difference in the magnitude of impact to the various city and county services.

8 8. The statement discusses the train traffic generated by the mine. However, the location of potential markets and the possibility of increased traffic through Gillette should be addressed.

9 9. We're glad to see the installation of air quality monitors. Mines such as this should be seen as an opportunity to evaluate future proposals and educate local citizens as to the effects of mining in this area. Air quality, hydrology, seismic and noise data generated should be sent to the City with interpretations on a regular basis.

10 10. Gillette's annual local citizen survey data should be continually used. OSM is invited to submit questions for future surveys. Note that the survey program locally spanned 1974 to the present; not 1973-76 as stated on page III-13.

11 We would like to express appreciation to Mobil for the purchase of local improvement district revenue bonds. That purchase was at a critical time in the financial situation of the City. That and similar efforts will provide a continuing favorable atmosphere for energy development in this area.

We were glad to see the repeated references in the statement that the cumulative impacts of local industrial activity is significant, and that this mine is a component of that impact. Too often in the past the reverse was argued, i.e., a single mine was insignificant. Without addressing each component, the overall problem would be ignored.

In closing, we support the use of the NEPA process to define and analyze specific mitigating measures. This process should be continued and refined to increase company and community communications, to facilitate a mutually acceptable mitigations package and to coordinate closely with the State Industrial Siting Administration.

8 See reply to State of Wyoming comments 1 and 2.

9 Thank you for your comment. Should the mine be approved, OSM will send the city of Gillette copies of any air quality and water monitoring data received on the Rojo Caballos mine.

10 The survey program discussed on page III-13 (now III-14) was prepared by the Wyoming Research Corporation, not the local citizen survey of Gillette. In the future, OSM will review and potentially use the local citizen survey.

11 Thank you for your comments.

The City is prepared to meet with the parties concerned to draft or review proposed amendments.

Sincerely,

Michael B. Enzi,

Michael B. Enzi
Mayor

MBE/js

COPY

BEFORE THE

UNITED STATES DEPARTMENT OF THE INTERIOR

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

In the Matter of:)
) TRANSCRIPT OF
PUBLIC HEARING ON THE PROPOSED)
MINING AND RECLAMATION PLAN,) PROCEEDINGS
ROJO CABALLOS MINE, CAMPBELL)
COUNTY, WYOMING.)

Wednesday, November 5, 1980
1:10 p.m. and 7:10 p.m.
Campbell County Recreation
Center
Gillette, Wyoming

APPEARANCES:

ROBERT SCHUENEMAN

BILL WEIST

MARLENE BERG

DANE BICKLEY

FLOYD JOHNSON

MARK BUSBY

MAYOR ENZIE: I am Mike Enzie, E-n-z-i-e. I am the Mayor of the City of Gillette, and I am appearing on behalf of the City of Gillette.

I would like to begin by complimenting you on the Statement. It seems to be generally well done and concise and

This is the only testimony presented at the public hearings on the DES held in Gillette at 1 p.m. and 7 p.m. on November 5, 1980. The letter from the city of Gillette is essentially the same, so responses to those comments serve as responses to the testimony.

is readable. It's a nice improvement over some of the ones we have had to look ~~at~~ in the past.

MR. SCHUENEMAN: Thank you.

MAYOR ENZIE: We would also like to comment--compliment Mobil for some of their efforts in our area, but we do have some comments in particular on the Statement, because we do support Alternative A, which is being approval with stipulations, and we do think that the stipulations need more work. The Statement socio-economic sections generally reflected the same mitigation package as was seen in the industrial siting application.

At that time the City testified as to several faults or difficulties with the package and apparent discrepancies in the impact assessment methods used. Mobil was going to talk to us about that in the--in the meantime, and we haven't had any further discussions on those discrepancies.

We do request as a result that the Final EIS contain the following changes: Number one, require applicant participation in not only monitoring of health and law enforcement functions but in a complete and comprehensive multi-year program of analyzing and projecting the economic base of the housing market as well.

Number two, the proposed busing program should be made more specific and should designate Gillette as the primary destination.

Number three, the applicant should be required to facilitate the construction of 250 additional mobile home spaces. The vague proposal on reserving existing spaces at best gives their employees an advantage over other employees that may be moving into the community. It doesn't increase the amount of housing.

Number four, the applicant should be required to facilitate the construction of additional housing. The amount of housing should be realistically related to the incremental increase in demand generated by the facility. We estimate that increased demand to be around a thousand units. We realize there is a discrepancy in the--in the numbers there between what we consider to be the increase and what the company may consider to be the increase. We don't export anything but energy from this community, so any growth that's caused in the community is caused by energy.

Number five, the statement on Page Roman Numeral IV-20, "The local developers plan to build ten thousand new units." could be misleading and implies there is no need for company participation in the housing supply. Housing supply has and will continue to respond to the market, and we agree. The participation by companies is sought to increase not only quantity but is a critical factor influencing the location, the quality and the timeliness of the new housing. We need to have the housing when the people arrive and the location of it is particularly critical to the City of Gillette. The City of Gillette has assumed a massive risk in incurring debts to provide for urban development. We have services provided for and in advance of the incoming populations, so we think that the companies have a shared responsibility to help the city to retire the debt by saying that these people live in this area as opposed to being spread out throughout the county. This can be met through a variety of mechanisms, many of them at little or no cost to the company.

Number six, the applicants have purchased local improvement district bonds and substantially supported a number of cultural activities and done other things that are definitely constructive. However, we are bothered that there is no commitment to what we consider to possibly be sufficient local decision-making authority, and we would like to have such a commitment.

Number seven, we always mention the references to local population and think that they should be updated. The April, 1980, Gillette population was 13,617.

Number eight, the Statement discusses train traffic generated by the mine. However, the location of potential markets and the possibility of increased traffic through Gillette by sales to western markets should be addressed.

Number nine, we are glad to see the installation of air quality monitors. Mines such as this should be seen as an opportunity to evaluate future proposals and educate local citizens as to the effects of mining in the area. Air quality, hydrology, seismic and noise data generated should be sent to the city with interpretations on a regular basis.

Number ten, local citizen survey data should be continually used. The Office of Surface Mining is invited to submit questions to future city surveys. We do it on an annual basis so that we can check progress or loss. We would note the survey program locally spanning from 1974 to the present time, not 1973 to '76, as stated on Page Roman Numeral III-13.

We were glad to see the repeated references in the Statement that the cumulative impacts, the local industrial activity, is significant and that the mine is a component in that impact. Too often in the past the reverse was argued such as a single mine was insignificant. Without addressing each component the overall problem would be ignored.

In closing, we support the use of the NEPA process to define and analyze specific mitigating measures. This process should be continued and refined to increase company and community communications to facilitate a mutually acceptable mitigations package and to coordinate closely with the State Industrial Siting Council.

Again, we appreciate your efforts and the efforts of Mobil. The City is prepared to meet with any parties concerned to draft any proposed amendments, too, and we will also submit this in writing.

Mobil Oil Corporation

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DENVER, COLORADO 80217
TELEPHONE (303) 572-2114

STEVEN D. HALL
COAL EXPLORATION AND PRODUCING MANAGER
ENERGY MINERALS — U.S.

November 13, 1980

Mr. Robert Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1010 15th Street
Denver, CO 80202

Dear Mr. Schueneman:

Please find enclosed with this letter Mobil's comments on the Draft Environmental Statement (DES) written for the Rojo Caballos Mine. The comments consist of suggested revisions or clarifications to various technical points raised in the DES. One of the most significant comments is that Mobil feels that alternative B should be the preferred alternative for Department of Interior approval for reasons detailed in the attached pages.

The Draft appears well written and, except for differences outlined in our comments, reflects Mobil's proposed mining and reclamation plan. If you have any questions regarding these comments, please feel free to contact W. G. Boettger at (303) 572-2089.

Very truly yours,

Steve D. Hall

S. D. Hall

JPW/ms

Enclosure

ROJO CABALLOS MINE

DRAFT ENVIRONMENTAL STATEMENT

ENVIRONMENTAL

1 1. Chapter II, page 4. The last line on the page should be moved back to the last paragraph ahead of the footnote.	1 The text has been corrected.
2 2. Chapter 3, page 11, paragraph 6. More recent data, appended hereto as "Attachment A", indicates that the densities of Pronghorn antelope and mule deer have decreased since the studies done in 1975 and 1976. Pages 15 and 16 of Attachment "A" show that Pronghorn density on the permit area varied between 6.2 per square mile (Fall 1979) and 2.6 per square mile (summer 1980). Similarly, mule deer observations were much lower than the earlier studies. Page 18 of Attachment "A" shows that there was only one mule deer observed on the permit site during the 4 data collection periods, although 57 deer were observed surrounding the permit area during the winter survey. Preferred Language We request that paragraph 6 be revised to reflect the more recent wildlife information, and to reflect that continuing wildlife surveys to update the earlier studies are underway.	2 The text has been changed to show this new pronghorn and mule deer baseline information.
3 3. Chapter 3, page 14, paragraph 3 and Chapter IV, page 27, paragraphs 1-3. The results of the most recent cultural resources surveys, appended hereto as Attachment "B", are not reflected in these sections. Specifically, all of the Rojo Caballos area has been surveyed in compliance with regulatory requirements, and several additional archaeological sites and artifacts were located. In total, four historic sites, three archaeological sites, and isolated artifacts have been documented for the permit area. None of the historic or the archaeological sites are considered eligible for listing on the National Register of Historic Places. It is our understanding that the Wyoming State Historic Preservation Office has concurred with the OSM action of mine plan approval with regards to cultural resources. As required by regulations, Mobil will contact the appropriate regulatory agencies, should cultural deposits be uncovered during mining operations. Preferred Language We request that the cultural resources paragraphs be revised to reflect the completed status of the mine plan area evaluations and to state that none of the sites discovered are eligible for listing on the National Register.	3 The cultural resources sections have been rewritten to reflect the completed work. None of the sites that will be impacted are eligible for the National Register of Historic Places. One site in the mine plan that is potentially eligible will not be impacted. The Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation have concurred with OSM's recommendations. Letters to this effect are included in Appendix D.

4 4. Chapter IV, page 1, paragraph 3.

The last sentence of this paragraph makes reference to alluvial aquifers. The reference is not correct since no major alluvial aquifers are present on site. Small areas of alluvial deposits are currently recharged by runoff events, but rapidly drain. No special reclamation needs to be conducted in these limited alluvial areas to reconstruct the deposit. It is only the coal and overburden aquifers that may take up to 50 years to recover. This 50 year recovery period assumes no surface recharge in the reclaimed area and is therefore very conservative.

4 The text has been changed.

5 5. Chapter IV, page 1, paragraph 4, line 14.

The soil and vegetation will not be lost from the mine site for the 24 year life of the mine. A progressive topsoil removal (from new mining areas), topsoil replacement (to mine areas), and reclamation plan will be followed. This serial removal and replacement of topsoil and vegetation will assure that the maximum amount of vegetative cover is available to wildlife.

Preferred Language

We suggest that this sentence be altered to substitute the word "decreased" for the word "lost" at the end of line 15.

5 The text has been changed.

6 6. Chapter IV, page 8, paragraph 2.

Sentence two of this paragraph is misleading. Although runoff characteristics of the site may change, sediment yields will not necessarily increase. Disturbance of an area does not necessarily mean that more sediment load would be produced. Also, slopes of many areas are often less steep after disturbance and therefore, result in less erosive conditions. Additionally, sedimentation impoundments are designed, as required by regulations, to contain the estimated runoff resulting from a 10 year/24 hour precipitation event, not a 25 year/24 hour event.

Preferred Language

Sentences one and two should be modified to say: "During mining... sediment discharge could change over the disturbed areas. All sediment discharged would be trapped in sedimentation ponds unless a storm greater than the 10 year, 24 hour storm occurred."

6 Disturbance of an area almost always produces more sediment until the cover has been restored. Thus, the reduction of sediment due to the decreased slopes is more than offset by the increased sediment owing to less cover.

The text has been changed with respect to the sizing of the ponds.

7 7. Chapter IV, page 15, paragraph 7.

The wording in this paragraph should be modified to reflect the unknown nature of the effects of stockpiling topsoil. It may not be correct to say that stockpiling decreases nutrient content, viability of plant seeds and propagules, and soil microbial activity. Research accomplished by Dr. Morton May of the University of Wyoming indicates that stockpiling does not have an adverse effect

7 OSM's staff experience and a literature review indicates that stockpiling topsoil for 24-years would adversely affect nutrient content, viability of seeds and propagules, and soil microbial activity (see "The value of fresh-stripped topsoil as a source of useful plants for surface mine reclamation," Howard, G. S., and Samuel, M.J., Journal of Range Management (32)(1), January 1979; and "Some effects on soil microbiota of topsoil storage during surface mining," Miller, R. M., and Cameron, R. E., Fourth symposium on surface mining and reclamation, October 19 through 21, 1976.

7 upon topsoil quality or microbial activity. In addition, we understand that research accomplished in North Dakota also indicates that stockpiling produces no degredation of the topsoil quality.

8 8 Chapter IV, page 27, paragraph 5.

This paragraph refers to a law which requires that ammonium nitrate storage tanks to be painted phosphorescent orange. It is not clear whether or not such a law exists in view of the current practice of other companies operating in the Gillette area. Mobil does not plan to paint the tanks with phosphorescent orange paint. We would prefer to paint all facilities with the non-reflective neutral paint. Additionally, Mobil's "non-reflective paint" is more of a neutral beige than a stark grey in color.

Preferred Language

Please remove the first half of sentence two, so that the sentence just reads "all painted surfaces, excluding concrete walls which would be left natural, would be painted in a non-reflective neutral tone."

8 The text has been changed.

9 9. Appendix B, page 1, stipulation #10.

Regulations do not require in all cases that sedimentation impoundments have spillways which are designed for the 100 year, 24 hour precipitation event. Impoundments which will be constructed at the Rojo Caballos mine will not be considered MSHA structures, as water volumes will not exceed 20 acre feet above ground level and the embankments will be less than 20 feet in height. Since Mobil's impoundments will be smaller than the MSHA regulatory threshold, there is no statutory authority for this stipulation.

Preferred Language

This stipulation should be eliminated.

9 The comment is partially correct for some of the ponds. However, ponds 2, 3, 10, 13, 14, 16, and 21 all have storage volumes greater than 20 acre-feet above ground level. The MSHA regulations (30 CFR 77.216(a)) use an embankment height above the upstream toe of only five feet for ponds with storage volumes greater than 20 acre-feet. Thus, many of the ponds do meet the MSHA regulatory threshold. In addition, SMCRA regulations (30 CFR 816.46(q)) are independent of MSHA and govern the spillway design size. The stipulation is modified to be applicable to only the above listed seven large ponds.

10 10. Appendix B, page 2, stipulation #17.

Mobil is assuming that requirements of this stipulation refer to the information which will be sent to the Wyoming DEQ. As a condition of the Mine Permit Application approved by the WDEQ (and awaiting OSM concurrence), all information concerning air quality control systems will be submitted to and reviewed by the appropriate regulatory agencies before the equipment is used. Additionally, Mobil is required by its PSD permit (Section 3, item 4) to submit all Air Quality protection plans to the EPA. Therefore, submission of such information to other agencies would only mean duplication of effort.

Preferred Language

This stipulation should be eliminated. We request also that the sixth item listed under the final paragraph of page 2, Chapter 2, be eliminated.

10 We agree with this comment. The stipulation has been removed.

11

11. Appendix B, page 2, stipulation #18.

Mobil will abide by requirements of the EPA and the Wyoming DEQ-AQD permits. The EPA-PSD permit requires that one upwind and two downwind air monitoring sites be located at the site. The DEQ-AQD Permit to Construct requires that we locate receptors as per maximums found by modeling.

This stipulation arbitrarily requires that receptors be located in the northeast, southeast and west parts of the lease area. The fact is that the wind roses show winds predominantly out of the northwest, south and southeast, thus, the OSM locations which have been required may be in error. Since we are strictly regulated by two agencies at this time, the air quality concern is already being fully addressed.

Preferred Language

This stipulation should be eliminated.

12

12. Appendix B, page 2, stipulation #20.

In many cases, the use of species such as alfalfa, crested wheatgrass, and smooth brome in reseeding mixtures is very important for quick stabilization of disturbed areas. If such species are not utilized, increased degradation to the environment (air quality, water quality, land quality) may likely result.

The Wyoming Department of Environmental Quality has already approved Mobil's revegetation program and has permitted the inclusion of such "introduced" species in order to stabilize areas as quickly as possible. Therefore, the proposed OSM stipulation conflicts with the DEQ-approved revegetation program.

Preferred Language

This stipulation should be eliminated.

11 Since the draft EIS was printed, you have submitted an air quality monitoring plan which after review by OSM and the State, is shown to be adequate for monitoring of TSP. Therefore, the stipulation has been removed.

12 Stipulation 20 (now 16) has been revised.

ROJO CABALLOS MINE

DRAFT ENVIRONMENTAL STATEMENT

ENGINEERING

13 1. Chapter I, page 24, paragraph 2.

The method used to calculate injuries and fatalities is unrealistic. It assumes 400 mine personnel working 24 hours per day, 365 days per year. Twenty four hours per day, year round operations would require approximately 1750 employees, as the average employee works about 250 shifts (2,000 hours) per year. Using a realistic factor of number of shifts worked per year, approximately 454 lost time injuries rather than 1657 may be calculated. The calculations below illustrate this assumption.

Method Used:

400 employees x 24 hours/day x 365 days x 24 years of operation x 3.94 injuries/200,000 man hours = 1657 lost time injuries.

Suggested Revision:

The average employee will work 250-300 shifts/year (2,000-2,400 man hours) 400 employees x 2400 hours/years x 24 years of operation x 3,94 injuries/200,000 man hours = 454 lost time injuries.

Similarly, the calculation used in the DES to predict 13 fatalities over the life of the mine is also based upon an unrealistic schedule. Rojo Caballos will be operated with 400 employees working an average of 2,000-2,400 hours per year. Thus, the statistical expectation is only 4 fatalities over the life of the mine, rather than the 13 predicted in the DES. The calculations are shown below:

Method Used:

400 employees x 24 hours/day x 365 days x 24 years of operation x.03 fatalities/200,000 man hours = 13 fatalities.

Suggested Revision:

The average employee will work 2,000-2,400 hours per year. 400 employees x 2,400 hours/year x 24 years of operation x .03 fatalities/200,000 manhours = 3.5 = 4 fatalities.

Note: If the calculations are done using 2,000 hours/year/employee, predictions are 378 injuries and 3 fatalities.

13 The figures used in the draft represent a worst case situation. Now that we have the actual anticipated work schedule, the text has been changed to show the more likely situation.

13 Preferred Language

We request that the numbers quoted in Chapter 1 and Table IV-1 be corrected as described in the calculations on page 5.

2. Appendix A, page 1.

14 The facilities listed under the premining subtitles do not include the design alternatives included in Mobil's Industrial Siting Permit Application and may not accurately reflect the facilities which may be constructed at the mine site. However, further economic feasibility studies must be completed in order to make the final decision on such equipment as single stage versus two stage crushing and silo versus barn coal storage. Chapter 9 of the State of Wyoming Industrial Siting Permit Application contains a discussion of the proposed mine and facilities including possible alternative designs. As the mine develops, if plan changes are required to ensure maximum economic recovery of the coal, applications for such changes in facilities design will be sent to the appropriate agencies as necessary. We request that a sentence be added to this section to indicate the fact that facilities design plans may not yet be finalized.

Preferred Language

We request that the following sentences be added at an appropriate place in the text of Appendix A. "Mobil is continuing to work on facilities design planning to ensure maximum economic recovery of the coal. Final engineering design may result in changes such as construction of coal storage silos rather than barn storage, or single stage coal crushing rather than two stage."

3. Appendix B, page 1, stipulation #2.

15 The 15% swell factor used in deriving the post-mining topography is an average for the entire lease area. The 15% swell factor is acceptable to the State of Wyoming based on information they have from other operating mines in the area, and therefore was used by Mobil for consistency. There does not seem to be any need to justify this swell factor estimate, as it fits in with standard operating procedure of other area mines.

Preferred Language

This stipulation should be eliminated.

4. Appendix B, page 1, stipulation #3.

16 This stipulation should be revised to require recovery of this wedge of coal where it is marketable and economically recoverable. We suggest rewording similar to the discussion of the near-surface 3' seam under the geology discussion on page IV-16.

Preferred Language

"The applicant shall mine the burned wedge of the coal seam where it is marketable and economically recoverable, to the..."

14 The text has been changed.

15 During meetings on December 4 and 5, 1980, Mobil Oil Corporation agreed to determine the site-specific swell factors resulting from its mining operation and to submit the data to the Office of Surface Mining. Because of this agreement, stipulation 2 has been deleted.

16 In the course of the meetings on December 4 and 5, Mobil Oil Corporation agreed to mine the wedge of coal to the burn line, or to the leasehold boundary, in the SE1/4 sec. 12. Thus, stipulation 3 has been deleted.

17 5. Appendix B, page 1, stipulation #9.

Sedimentation impoundments have been designed to include collection of sediment from undisturbed portions of otherwise disturbed watersheds. As stated in the Mine Permit Application, sedimentation ponds have been designed to control sediment which will come from disturbed areas and other associated areas. The sedimentation system meets all requirements of the Office of Surface Mining's Permanent Regulatory Program. Therefore, the concerns of stipulation #9 have been addressed previously, and all sediment will be adequately controlled.

Preferred Language

This stipulation should be eliminated.

18 6. Appendix B, page 4, stipulations 33 and 35.

Since both of these stipulations deal with haul roads they should be combined and clarified. We suggest revising stipulation 33 as follows, and omitting stipulation 35.

Preferred Language

"Road profiles must be provided to the regulatory authority, within 30 days of Departmental approval of the MRP, showing grades, ditch slope, culverts, relief drainage structure to meet the appropriate spacing requirements, and a discussion of methods used to obtain erosional stability of the embankment.

17 The computations shown in table G-15B (Sedimentation Pond Design Parameters) of the MRP used only the percent disturbed area of the total watershed area to compute the sediment storage. No additional sediment capacity was added for either gully erosion or the natural sediment discharge from the undisturbed areas. Therefore, the requirements of 30 CFR 816.46(b) have not been totally met.

18 We believe that stipulation 35 (now 30) may have been misinterpreted. This stipulation refers to 30 CFR 816.152(d), and most specifically to sub-paragraphs 6 and 9 regarding the embankment stability, not the erosional stability.

ROJO CABALLOS MINE

DRAFT ENVIRONMENTAL STATEMENT

SOCIOECONOMICS

19 1. Summary, page viii, paragraph 1.

OSM has characterized Gillette's accommodation of rapid growth as accomplished "to some degree". Past public statements of Gillette officials indicate that observation is incomplete. The community has, in fact, successfully accommodated growth (Verbal Statement by Gillette City Planner, Joe Racine, to Mobil representative La Verna Smith 8/3/80).

Preferred Language

"...the existence of a community which has been reasonably successful in accommodating rapid growth..."

20a 2. Summary, page ix, paragraph 2 and 4.

Paragraph 2

Campbell County population increase of 2900 by 1990 attributed to Rojo Caballos is too large. The Industrial Siting Staff, in their analysis of Mobil's permit application, attributes a 2,220 increase by 1989. Browne, Bortz and Coddington (BBC) attributes 2,327 by 1990.

Preferred Language (paragraph 2)

The mine would add 1463 and 757 persons, respectively, to the projected population increase in Gillette and rural Campbell County (Gillette fringe and other rural) resulting from energy development by 1990. Total population effects on Campbell County would be an increase of 2,220 persons. Because the mine would increase property valuation, the County generally is expected to be able to meet increased infrastructure demands. Although Gillette would not have as immediate a source of additional income to finance needed improvements, applicant's socioeconomic mitigation program approved by the Wyoming Indistrial Siting Council will satisfactorily off-set the impacts of Mobil's mine.

20b Preferred Language (paragraph 4)

"Alternative A...Measures to alleviate adverse socioeconomic impacts are considered adequate under Alternative B."

19 The text has been changed.

20a We do not agree that the population projections used should be changed. "The population and employment impacts of the Rojo Caballos mine were analyzed utilizing a five county regional economic model. The regional analysis included Campbell, Converse, Johnson, Natrona, and Sheridan Counties, which historically function as a regional economic unit. The regional economic model uses exogenously determined employment changes due to current and announced mineral developments to produce forecasts of income, employment, and population for each of the five counties. The model accounts for the economic interdependencies among the counties through an analysis of inter-county income flows. The model consists of three major components, a demographic sector which analyzes changes in the size and characteristics of the native population of each county; an economic sector which projects employment demand in each county for the 10 major economic sectors; and a migration sector which compares the native labor supply with projected labor demand and generates immigration projections if supply is insufficient to meet demand" (A socioeconomic assessment of the Rojo Caballos mine: Unpublished report available at OSM, Denver, Colorado).

The methodology utilized to produce population projections also affects the assessment of service, facility, and fiscal requirements for Gillette, Campbell County, and the school district because many of these projections are based on the expected population.

20b See the revised alternatives section of the environmental impact statement.

21

3. Chapter II, pages 1-3 and Appendix B, page 4, stipulation #42

The socioeconomic stipulation requested as Alternative A (and stipulation #42) is unnecessary and without statutory authority. The State of Wyoming has a comprehensive Industrial Siting Act which provides for the mitigation of adverse socioeconomic impacts. As part of Mobil's Industrial Siting Permit, an on-going and comprehensive socioeconomic monitoring system will be developed for Gillette and Campbell County under the auspices of the Industry Committee of the Campbell County Chamber of Commerce. Other participants in the monitoring program will include members of the Industry Committee of Campbell County Chamber of Commerce as well as representatives of the City of Gillette, Campbell County, and Campbell County School District. Carter Mining Company will also participate in this monitoring program in compliance with the Industrial Siting Council's permit condition for its Rawhide Mine expansion.

The socioeconomic monitoring system will collect and analyze data not only for crime increases and health service demands, but for all socioeconomic impacts incurred in Gillette and Campbell County.

Consequently, under Wyoming requirements, Mobil will be participating in a socioeconomic monitoring system which is more comprehensive and will have a greater overall effectiveness than that proposed in the DES. Under the ISC stipulation, wide-spread community and industry involvement will provide for rapid response to potential impact problems. Additionally, under the state permit, Mobil is required to take necessary mitigative action to reduce any socioeconomic impacts of its facility upon present and expected inhabitants, in the event additional assistance is needed and requested by a local governmental entity.

Attachment "C" provides additional information on the long-range socioeconomic monitoring program being developed for Gillette and Campbell County.

Preferred Language

Alternative B: The Preferred Alternative

Replace paragraphs 2,3,4 of Alternative B as written with the above discussion, rewording the first sentence of the discussion to read, "comprehensive socioeconomic monitoring system is currently being developed for Gillette and Campbell County." We would like to state that Alternative A, as presently written, should be deleted from the Environmental Statement. Alternative B should replace A as the preferred alternative for Department of Interior approval. The legal basis for the elimination of socioeconomic mitigation requirements is presented as Attachment D.

21

OSM has dropped proposed stipulation 42 because OSM agrees with the commenter that the specific stipulation, as drafted, is too broad and should have focused on the socioeconomic impacts resulting specifically from the Rojo Caballos operation. In addition, the ultimate goal of the monitoring and mitigative measures addressed in the proposed stipulation will now be substantially achieved through requirements of the Industrial Siting Council for construction of the Rojo Caballos mine. OSM endorses the actions taken by the State of Wyoming and the cooperative efforts of Mobil in seeking realistic and reasonable means to mitigate those potentially adverse socioeconomic impacts, identified in the environmental impact statement, which will result from Federal approval of the Rojo Caballos mining plan.

OSM involvement in the process of identification, monitoring, and mitigation of socioeconomic impacts of Federal actions is clearly required for its fulfillment of responsibilities under the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq. (NEPA), and its implementing regulations. An environmental impact statement "shall provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment" and the document "shall be used by Federal officials in conjunction with other relevant material to plan actions and make decisions" (40 CFR 1502.1). Among the environmental consequences which must be considered are indirect effects "which are caused by the action and are later in time or farther removed in distance, but are still reasonably forseeable." (40 CFR 1508.8). Effects which must be discussed include ". . .cultural, economic, social, or health, whether direct, indirect, or cumulative (40 CFR 1508.8). "When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are inter related, then the environmental impact statement will discuss all of these effects on the human environment" (40 CFR 1508.14). In satisfying its NEPA mandates, OSM must provide the Secretary with all reasonable alternatives and mitigation measures (40 CFR 1502.14) for use in the decision-making process. One of the options the Secretary has is to disapprove or defer action on a mining plan pending mitigation of certain environmental impacts, including socioeconomic impacts.

There is ample evidence of the potential for significant adverse socioeconomic impacts resulting from expanded mining on Federal lands in the West--Eastern Powder River Coal, Bureau

22 4. Chapter III, page 11-13, Socioeconomics Section

The following exceptions are taken to the socioeconomic discussion in Chapter III:

Par. 1 The population effect on Gillette and Campbell County attributed to Rojo Caballos mine development are too large and therefore, exaggerate Mobil's impact on the community and county. See discussion under comment #2, page 8.

Par. 2 According to the Wyoming Siting Administration staff review of Mobil's permit, sewage handling facilities are not presently inadequate but can serve up to 21,700 persons and therefore appear to be adequate. Construction of a new plant commencing in 1981 and completed in 1983 will serve 35,000.

Preferred Language

Paragraph 1

The population of Campbell County was about 27,440 in 1980 and is expected to reach 51,022 in 1990. The 1980 population of Gillette was about 14,440 and is expected to reach 27,157 by 1990. These are probable projections based on existing and likely future energy development excluding the Rojo Caballos mine (data from Wyoming Industrial Siting Staff Review, 1980).

Paragraph 2

Replace sentence with "... The City's sewage capacity is adequate to serve up to 21,700 persons."

23a 5. Chapter IV, page 3, Table IV-1.

Exception is taken to Table IV-1 which attributes 3000 population impact to Rojo Caballos. In addition, we note that neither unemoloyed nor unskilled persons would be adversely impacted by Rojo Caballos. Additional job availability, including "utility" positions for the unskilled, may reduce area unemployment.

23b A definition of incremental ranges ascribed to major, moderate, minor and neglible impacts (for e.g., percentage increases) should be provided before any impact level is assigned to Rojo Caballos. If it cannot, delete socioeconomic and recreation references from Table IV-1.

24 6. Chapter IV, pages 17-18, paragraph 1; page 18, paragraph 4:

The population effects of Rojo Caballos mine (2900) are overestimated. For example, OSM projects the population of Campbell County to be 52,100 by 1990 without Rojo Caballos and 55,000 with the mine - a 2,900 increase due to the mine. Wyoming Industrial Siting staff attributes a population increase of 2,200 (including induced) by 1990 to Rojo Caballos. BBC has estimated this figure to be 2,327 by 1990. OSM projected 1990 population for Campbell County

21 of Land Management (final environmental impact statement, 1979); Star Lake Bisti Regional Coal, Bureau of Land Management (final environmental impact statement, 1979); Northern Powder River Basin Coal, Montana, U.S. Department of the Interior and the Montana Department of State Lands (final environmental impact statement, 1980); East Decker and North Extension mines, Decker Coal Co., Big Horn County, Montana, U.S. Department of the Interior and the Montana Department of State Lands (final environmental impact statement, 1977); and Proposed Mining and Reclamation Plan, Pronghorn mine, Campbell County, Wyoming, U.S. Department of the Interior, USGS (final environmental impact statement, 1979). Thus, OSM's role in gathering information, presenting alternatives, and proposing mitigation measures for socioeconomic impacts takes on added significance in the preparation of supportable documentation for and the identification of conditions under which the Secretary may make a decision to approve a proposed mining plan. All reasonable mitigation measures--drafted with specificity and related directly to impacts attributable to the particular proposal under consideration--are appropriate under NEPA for presentation to the decisionmaker and inclusion in the ultimate decision.

Therefore, to fulfill its statutory obligations, OSM must continue to work actively to promote consultation and cooperation among applicants and Federal, State, and local officials regarding reasonable measures to mitigate the demonstrated adverse impacts and socioeconomic disruptions which often result from the Federal decision on a proposed mining plan.

22 Refer to comment 20. The city's sewage collection system is currently adequate. However, the treatment facilities are designed to meet a demand of 1.2 mgd, which is inadequate to accomodate a peak demand of 3.1 mgd in 1981. The text has been changed to reflect this condition.

23a Refer to comment 20a for a discussion of population projections and impacts. "Utility jobs would be relatively few in number and low-paying. These utility jobs may decrease unemployment slightly, however, this section of the population will still be impacted by inflation." (Same source as comment 20a).

23b The purpose of table IV-1 is to provide the reader with a simple and concise summary of impacts. The definitions of negligible, minor, moderate, and major have purposely been generalized in order to be applicable to the broad range of subjects discussed in the table. For a more detailed discussion of the incremental ranges assigned to negligible, minor, moderate and major impacts concerning socioeconomics, see the socioeconomic section of chapter IV.

24 Refer to comment 20a.

24 of 55,000, and a population for Gillette of 32,100 is higher than ISA staff projections (for the cumulative case) of 50,170 and 27,040 respectively. The OSM projections overestimate impacts in general and Mobil's Rojo Caballos impacts in particular.

Preferred Language

Pages 17-18, paragraph 1

"The Rojo Caballos mine would contribute to moderate social and economic impacts on Gillette and Campbell County...without the mine the population of Campbell would increase between 1980 and 1990 from 27,330 to 51,033; with the mine to 51,790. In Gillette, for this same period, the population would increase without the mine from 14,440 to 27,157 and to 28,620 with it." (Wyoming Industrial Siting Administration Staff Review 1980).

Preferred Language

Page 18, paragraph 4

"For Gillette, annual growth rates with the mine would peak at about 14.2 percent (1981-1982)... For Campbell County (total) growth rates with the mine would peak at 12.1 percent (1981-1982)... By 1990, the population of Gillette would increase by about 1463 persons as the result of the Rojo Caballos mine, and the population of Campbell County (total) by about 2,220 persons."

Change Figure IV-6 to reflect revised population effects.

25a 7. Chapter IV, page 20, Housing Section paragraphs 1 and 2.

Housing unit demand credited to Rojo Caballos is overestimated.

25b Construction worker reserved space breakdown is an estimate only, based on projections. Actual space breakdown will depend on local hire rate, location of mine construction subcontractors and consequent demand.

Preferred Language

Housing Section paragraph 1.

...."of these approximately 557 and 176 would be due to the proposed Rojo Caballos Mine."

Housing Section, paragraph 2.

Insert as next to last sentence: "This breakdown is based on estimated projections; actual space breakdown will depend on local hire rate, location of subcontractors for mine construction work and consequent demand."

25a Our projection of housing demand and the type of housing are based on population projections (as outlined in the response to 20a), historic housing data, and other factors such as local labor availability.

25b Text has been changed.

26	8. Chapter IV, page 24, paragraph 1, line 4. Mobil has purchased $1.9 million dollars worth of LID bonds rather than $1.8 million dollars listed in paragraph 1.	26	Text has been changed.
27a	9. Chapter IV, pages 20-22, Public Service Section. Paragraph 6, page 20. Change wastewater statement to reflect Mobil's comment 4 (paragraph 2, page 10).	27a	No change is required. The plant will remain inadequate until 1983.
27b	Paragraph 7, page 20. Delete sentences 2 and 3. Preferred Language for sentences 2 and 3. ...In Gillette, depending on hiring standards, 21-28 new officers by 1990 will be needed. Mobil's impact will be respectively 10 to 11 percent of projected need (2 if 21 officers are hired; 3 if 28 officers are hired). Campbell County will require an additional 24 officers by 1990 if present hiring standards are maintained. Rojo Caballos impact will require an additional 2.2. officers of the 24 or 9%. (Wyoming Siting Staff Review).	27b	The differences in law enforcement and medical requirements is attributable to differences in predicted population increases. (Refer to comment 20a).
27c	Page 22, Medical Care paragraph Replace 3.0 physician demand credited to Rojo Caballos with 2.5. (Wyoming Siting Staff Review). Page 22, paragraph 1. Delete entire paragraph beginning with "Analysis of ...", since these requirements are already addressed in the long-range impact monitoring program being developed. A full disucsison of the program can be found in Attachment C.	27c	Text has been changed.
28	10. Chapter 4, page 21. Delete Table. The basis for arriving at the assumptions in the table is not included in the DES document.	28	Source has been included on this page to correctly represent the assumptions made in the table.
29	11. Chapter 4, pages 22-24, Public Financial Section Net negative impact of Rojo Caballos mine is overestimated. This section should be revised to reflect Browne, Bortz and Coddington and Wyoming Siting Administration Review analyses. Delete this section or revise it to reflect WISA staff projections.	29	The fiscal impacts were calculated with the assistance of the local officials in Campbell County. The net negative impact is high since fiscal impacts are related to population figures (refer to comment 20a).
30	12. Appendix A, page A-15. Note construction worker housing breakdown discussed in Mobil comment 7, page 11. This discussion should be used to revise page A-15.	30	Text has been changed.

31

13. Appendix A, pages 15 and 16 - Permanent Worker Relocation Assistance Program.

As part of its interpretation of responsibilities under its ISP, Mobil has determined that "commissions on the sale of housing... at the time they are hired", should be limited to relocating employees in critical skills at the mine site. Critical skills would include craft mechanics, electricians, welders, and other professional and managerial positions.

Preferred Language

To accurately reflect Mobil's obligations under its permit, the relocation expense paragraph should read:

> "Relocation expense - The proposed program would be designed to cover moving expenses including commissions on the sale of housing already owned for those employees in critical skills who own housing at the time they are hired. The intent is to defray expenses normally associated with moving, thus assisting permanent employees in making a mortgage downpayment in Gillette."

31 Text has been changed.

32

14. Appendix A, page 15.

Construction worker peak employment is overstated at 540. Actual peak is 363 in 3rd quarter of 1981 and 470 in 2nd quarter of 1982.

Preferred Language, paragraph 1.

"The Rojo Caballos mine would employ up to 470 workers during construction."

Preferred Language, paragraph 3

Construction employment peaks at 363 in the 3rd quarter of 1981 with a second peak of 470 in the 2nd quarter of 1982.

32 Text has been changed.

33

15. Appendix A, page A-16, paragraph 3, line 1.

LID Bond purchase is $1.9\overline{M}$ rather than the $1.8\overline{M}$ stated.

33 Text has been changed.

34

16. Appendix B, page B-4

Delete stipulation #42. See discussion contained in Attachments C and D.

34 The socioeconomic stipulation has been removed because the stipulation, as drafted, was too broad and not mine-specific. The alternatives were reconstructed since the intent of the stipulation will be accomplished under permit conditions required by the Wyoming Industrial Siting Council.

ATTACHMENT "C"

Stipulation 42, Rojo Caballos
Draft Environmental
Statement, OSM-EIS-3

This attachment summarizes Mobil's September 4, 1980 letter to Dane Bickley, Community Planner, Office of Surface Mining, Region V. The purpose of the letter was to discuss the extensive on-going socioeconomic impact assessment and monitoring system being developed for Gillette and Campbell County thereby negating any need to include the above referenced stipulation in the Final EIS. The stipulation is unnecessary and should, therefore, not be required as a condition to approval of Mobil's mine and reclamation plan.

The stipulation as explained on Pages II-1 to II-3 of the Rojo Caballos Draft Environmental Statement indicates that an analysis of socioeconomic impacts on the City of Gillette identifies two impact areas as having potential to disrupt the welfare of the community; crime increases and demand for health services. For this reason, OSM stipulates that applicant (Mobil) alleviate these impacts, through cooperation with the City of Gillette, should they occur. Applicant would be required to assemble data, serve as a data bank to keep information current and analyze trends for the following law enforcement and health agencies and departments:

Law Enforcement

Gillette Police Department
Campbell County Sheriff
Local Fish and Wildlife Management Officer (State Game and Fish Warden)
Wyoming Highway Patrol

Health Services

Campbell County Memorial Hospital
Northern Wyoming Mental Health Center
Department of Public Assistance and Social Service
Local Physicians

OSM additionally indicates that it would be desirable for the community to form a monitoring group to receive this information and to analyze appropriate courses of action as well as provide same for monitoring of employment, population, housing, public welfare. The suggestion is made that other mining companies input, as needed, to the local monitoring group.

Gillette/Campbell County Socioeconomic Monitoring System

The following discussion outlines the mechanisms which have been developed to provide extensive socioeconomic impact assessment and monitoring for Gillette and Campbell County; thereby negating the need for the above stipulation.

1. The main mechanism used to provide on-going comprehensive socioeconomic monitoring is the Industry Committee of the Campbell County Chamber of Commerce. This is a stipulated Permit Condition of the Industrial Siting Council in granting an Industrial Siting Permit to Mobil for construction of the Rojo Caballos Mine in accordance with the Wyoming Industrial Development Information and Siting Act (W.S. 35-12-101-121). Carter Mining Company is subject to an identical permit condition promulgated in their July 28, 1980 hearing for the Rawhide Mine expansion.

2. Mobil therefore will participate in an on-going, comprehensive socioeconomic monitoring program which will collect and analyze data not only on crime increase and demand for health services, but for every component of socioeconomic impact on Gillette and Campbell County. The product of the monitoring program will not only meet the requirements set forth in the stipulation, but greatly exceed them.

3. In addition to supporting the comprehensive monitoring program, conditions of the Industrial Siting Permit require that Mobil mitigate socioeconomic impacts which arise during the life of the mine. If such occurs, Mobil will be requested to assist in mitigating those impacts which result from the construction and operation of its mine, including direct and indirect employment. It is obvious from the language of the permit condition that if negative impacts would occur from crime increases or demand for health services (as well as other socioeconomic impacts), the Siting Council may be petitioned to require additional mitigative action.

On July 29, 1980, the Industrial Siting Council, by a 5-0 affirmative vote, conditionally approved Mobil's Industrial Siting Permit for construction of the Rojo Caballos Mine subject to Permit Conditions as presented in evidence and supported by the applicant, Industrial Siting Staff, and parties involved. The Council grants a permit only if it finds and determines that the facility represents an acceptable impact upon the economic well being of the municipality and the people of the area.

Monitoring Program

As described in Section 7.2 of the Industrial Siting Administration staff review, a monitoring program administered through the auspices of the Chamber of Commerce Industry Committee will be established in cooperation with local government:

> "The Industry Committee of the Campbell County Chamber of Commerce should be requested to collect and analyze on a recurring basis the necessary socioeconomic data from all existing and prospective industrial developments which will contribute to the population and economic growth in Campbell County. The specific parameters to be included in this monitoring program should be jointly agreed to by the City of Gillette, the Campbell County Commissioners, the Campbell County School District #1, the Industrial Siting Administration and members of the Industry Committee. As part of the monitoring program, a comprehensive analysis

should be made annually of the local community's present and anticipated future socioeconomic conditions. Copies of this analysis should be submitted to participating companies, local governments, the Industrial Siting Administration, and, upon request, to other interested parties. Financial support for the monitoring program should be shared in proportion (as measured on the basis of direct impacts on the community) by the Rojo Caballos Mine, all other prospective developments, and by other industrial developments which, while they presently do not fall under the jurisdiction of the Industrial Siting Act, voluntarily join the "program".

The above described monitoring system exceeds that required by the OSM stipulation in that it provides for a more effective and rapid response to potential problems, due to: 1) number of companies involved; 2) composition of the monitoring system which includes industrial, county, city and school district representatives; and, 3) comprehensive nature of the program.

Program Participants

Participants in the socioeconomic monitoring system will be:

1. The Industry Committee (Carter Mining Company, Mobil, Amax, Shell, Sunedco, Kerr-McGee, Wyodak, Pacific Power and Light, North Antelope, Consolidation Coal Co., Thunder Basin Coal Co. and Burlington Northern) under the auspices of Campbell County Chamber of Commerce.

2. City of Gillette

3. Campbell County

4. Campbell County School District

A Steering Committee has been formed to prepare the organizational framework and program content of the monitoring system for approval by member companies at the Industry Committee's November meeting.

Summary

The above discussion serves to demonstrate the adequacy of existing mechanisms in providing monitoring and mitigative analysis and timely impact assistance response to increased demands on Gillette and Campbell County health care and law enforcement capabilities. Major points are:

1. Industrial Siting permit conditions require Mobil to respond to impact mitigation needs as they arise, if so requested, for direct impacts arising out of the Rojo Caballos project.

2. The annual monitoring system under the auspices of the Industry Committee, again stipulated as a permit condition for Mobil's (and Carter Mining Company's) industrial siting permit, is more than adequate for comprehensive facilities analysis and needs assessment.

It follows that the above described socioeconomic impact assessment and monitoring mechanisms will provide comprehensive and expeditious guidance for Gillette and Campbell County in avoiding any adverse socioeconomic impacts. The stipulation contained in the EIS draft statement therefore is unnecessary and should not be required as a stipulation in approving Mobil's mine and reclamation plan. Consequently, we request that the Draft Environmental Statement be modified to remove Alternative A and substitute what is now named Alternative B as the "preferred alternative".

ATTACHMENT "D"

Deletion of Socioeconomic Impact Mitigation Requirement

The proposed preferred alternative and Stipulation #42 listed in Appendix B of the Draft Environmental Statement (DES) for the Rojo Caballos Mine indicates OSM's intent to impose socioeconomic mitigation requirements as part of its mine plan approval. While socioeconomic impacts should be discussed in the DES, mitigation measures are within the jurisdiction of the State of Wyoming and are beyond the statutory authority of OSM. Consequently, preferred Alternative A and Stipulation #42 should be deleted. Proposed Alternative B should be substituted for Alternative A as the preferred alternative.

Imposition of socioeconomic stipulations is a unilateral effort by OSM to expand its authority, thereby effectively reducing State participation to ministerial implementation of a federally devised program. The attempt by OSM to impose such socioeconomic mitigation is without statutory authority and also flies in the face of the State's Constitutional police power reservation. The police power is the most absolute of the sovereign powers of the State. To the extent, if any, that Congress has the power to legislate dominion over the socioeconomic concerns of growth-impacted communities, it has failed to do so -- through its authority to regulate either under the Commerce or the Property Clause of the U.S. Constitution. Thus, the Surface Mining Control and Reclamation Act (SMCRA) does not test Congress' Constitutional limits in this traditional area of state and local concern. Absent express delegation of socioeconomic regulatory powers from Congress, OSM has none.

Under SMCRA, Congress intended that the states have primary responsibility for the regulation of surface coal mining. Accordingly, Congress has basically limited OSM's role to federal oversight of State surface mining and reclamation programs. To the extent SMCRA invests OSM with direct regulatory authority, the agency's powers are limited to protection of those values and resources delineated in the Act. Socioeconomic concerns are not subject to the Act. There is neither legislative intent nor express statutory language in SMCRA which authorizes the Office of Surface Mining to impose permit conditions for socioeconomic values.

Since the surface overlying the coal to be mined in the present case is owned by the applicant, OSM's involvement in the permitting procedure for Rojo Caballos under the Wyoming permanent program is based solely upon OSM's broad interpretation of the "federal lands" definition. Relying on §523 of SMCRA, OSM asserts that it has a "duty" to independently approve mining plans on private surface overlying federal coal. This interpretation not only results in a duplicative mine plan review process, but also is contrary to long-standing legal precedent concerning State control over split estate lands. Mobil and other members of the coal industry, as well as the states, have repeatedly argued against this OSM assertion of authority for a mining operation wherein the sole federal interest is the reserved mineral estate. But to date, OSM has persisted in its view.

Even assuming *arguendo* that OSM has authority to regulate the physical impacts of a surface mining operation which produces federally-owned coal; such authority could not logically be extended to include usurption of the State's police power. The local communities of Gillette and adjacent areas do not fall within even OSM's expansive interpretation of what constitutes "federal lands". Moreover, the potential socioeconomic impacts on these communities are neither physical surface effects which are the Congressional concern expressed in SMCRA nor impacts on the federal coal interest.

The OSM imposition of socioeconomic mitigation requirements appears to be without precedent. Perhaps recognizing its lack of statutory authority and the potential Constitutional conflict, OSM has never promulgated socioeconomic regulations. More importantly, OSM cannot develop such regulations. While the district court (*In Re Permanent Surface Mining Regulation Litigation*, *Civil No. 79-1114, D.D.C. February 26, 1980)* has stated that OSM's regulations may cover items not specifically delineated in the statute, such regulations must conform to the Act's purposes and policies. However, promulgation of socioeconomic regulations would neither conform to SMCRA's purposes nor be compatible with the state's traditional prerogative to govern social and economic aspects of growth.

Although socioeconomic involvement appears to be a new tactic for OSM, OSM has attempted, *albeit* unsuccessfully, to expand its scope of influence beyond regulating the surface effects within the mine plan area. However, the district court, *id.* has concluded that "Congress articulated, with specificity, those instances in which information outside the permit area was necessary." Socioeconomic information is not so specified. The OSM Stipulation #42 would require Mobil to "assemble, maintain and analyze data on health-service needs and crime rates in Campbell County, including Gillette". Such a requirement obviously necessitates off-site information and as such, the requirement is without legal basis.

Nor can OSM rely upon the requirements of the National Environmental Policy Act of 1969 (NEPA) to justify its imposition of information gathering and mitigation measures for socioeconomic concerns. As noted above, OSM's powers to regulate coal surface mining operations must lie within the limits authorized by law. The "law" in this instance is SMCRA since, as emphasized by the U.S. Supreme Court, NEPA is essentially a procedural statute. *Vermont Yankee Nuclear Power Corporation v. NRDC*, 435 US 519 (1978) and *Strycker's Bay Neighborhood Council v. Karlen*, 13 ERC 2157 (1980). NEPA mandates that an agency give a "hard look" to environmental concerns including socioeconomic considerations. NEPA does *not* authorize an agency to impose whatever requirements it so desires upon an applicant. While courts have sometimes required agencies to discuss certain alternatives in an environmental statement, even though the agency lacked power to adopt or put into effect such alternatives, the courts have never construed NEPA as empowering an agency to adopt an otherwise unauthorized alternative. (*Natural Resources Defense Council v. Morton*, 3 ERC 1558 (1972).)

In accordance with the Wyoming Industrial Development Information and Siting Act (W.S. 35-12-101 *et seq.*) Mobil submitted an industrial siting application which was reviewed extensively by the Wyoming Industrial Siting Staff and numerous other state agencies. In granting Mobil's permit, the Wyoming Industrial Siting Council determined that:

> "The studies of the public facilities and services within the area of socioeconomic influence indicate that the net effects on the governmental entities are generally positive. ... The evidence presented by the Parties and the Staff clearly indicates that if the Permit Conditions are imposed that there would not be a threat of serious injury to the social and economic conditions of inhabitants or expected inhabitants within the effective areas. The Council concurs."

Hence, the The State of Wyoming, through the appropriate administrative body, has officially determined that the Rojo Caballos mining operation does not pose a threat of serious injury "to the environment or social and economic conditions".

The OSM proposal ignores this state assertion of its police power. OSM usurps authority not only for itself but the stipulation also attempts to invest the local authorities (undefined) with the power to determine "that existing [health care and law enforcement] facilities are not sufficient" -- a power already vested in and exercised by the Wyoming Industrial Siting Council. In addition to undermining the rights of Wyoming, OSM Stipulation #42 imposes an unreasonably broad and open-ended liability upon the applicant. Although Mobil is not currently an operator in the area, the OSM proposal requires Mobil to mitigate any perceived deficiencies in "existing facilities". OSM fails to distinguish between current baseline conditions and the quantum of additional socioeconomic impact which arguably might be attributable to Mobil's operation. Finally, the OSM stipulation fails to limit the requirement for identification and implementation of mitigation measures to impacts directly resulting from Mobil's mining operation. In fact, there is no requirement that Mobil's operation even be in existence before OSM imposes liability for impact mitigation.

The State of Wyoming has exercised its police power authority to regulate socioeconomic impacts of the proposed development. Consequently, without a clear and valid assertion of federal jurisdiction by Congress, OSM cannot divest or intrude upon the state regulatory process.

In summary, OSM's proposed imposition of socioeconomic mitigation requirements:

1. Usurps the State of Wyoming's police power;

2. Lacks statutory authority; and,

3. Does not require a causal relationship between Mobil's operations and the incurrence of mitigation liabilities.

Therefore, all references in the DES to OSM requiring socioeconomic mitigation efforts as a prerequisite to mine plan approval should be deleted.

Mobil Oil Corporation

P.O. BOX 5444
DENVER, COLORADO 80217

November 18, 1980

Mr. Robert Schueneman
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

In our meeting of November 17, 1980, we discussed Mobil's comments on the Draft Environmental Statement for the Rojo Caballos Mine. We neglected to include one comment concerning final vegetation of the site, and anticipated grazing use of the permit area following mining. Our comment on stipulation #23 is included with this letter. Please consider this comment along with the package forwarded to you yesterday.

If you have any questions, please feel free to contact me.

Very truly yours,

W. G. Boettger
Environmental Manager - Coal/Synfuels

JPW/lc
Attachment

Appendix B, page 3, stipulation #23

Certain provisions of 30 CFR 816.115 of the permanent surface mining regulations were suspended August 4, 1980 (45 F.R. 151 at page 51549) to the extent the regulation required that land must be used for livestock grazing when the approved postmining land use is range or pasture. The suspension was the result of the U.S. District Court for the District of Columbia, decision dated February 26, 1980 for In re: Permanent Surface Mining Regulation Litigation, Civil Action No. 79-1144 which found that the Secretary lacks statutory authority to require actual grazing. An operator is only required to restore the land so that it is capable for use as pasture land. Since the Secretary can not force an operator to engage in grazing activities, this stipulation should be eliminated.

Preferred Language

This stipulation should be eliminated.

Mobil has proposed a post mine land use of livestock grazing. The company must demonstrate that the established vegetation is capable of sustaining the approved post mine land use at the time of bond release. In addition, the regulations (30 CFR 701.5 and 816.116) require that areas used to develop success standards receive levels of management comparable to the approved post mine land use. Therefore, Mobil's intent must be clarified as stated in stipulation 23 (now 19).

CITCO

CITIES SERVICE COMPANY
CHEMICALS & MINERALS GROUP

Box 300
Tulsa, Oklahoma 74102

ALTERNATE FUELS - COAL

October 29, 1980

Robert Schueneman
Office of Surface Mining
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Schueneman:

Cities Service has reviewed the Draft Environmental Statement OSM-EIS-3 titled: "Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming and offers the following comment:

1 On page I-2 is Figure I-I, which shows the location of operating and proposed mines in the Gillette area. Cities recognizes that it is difficult to accurately portray boundaries on this small scale; however, the map does show the location of the proposed South Rawhide mine extending north of the proposed East Gillette Mine and East of the Eagle Butte Mine. This is not correct. The lands shown as part of South Rawhide north of East Gillette and east of Eagle Butte are owned by Peabody Coal Company. Peabody Coal Company is now finalizing the sale of these lands to Cities Service Company, which plans to develop its own mine on these properties.

Cities Service, therefore, requests that Figure I-1 on page I-2 be corrected to show the South Rawhide Mine as extending no further north than the Proposed East Gillette Mine. We appreciate your attention to this matter.

Attached is a copy of the map with the requested change.

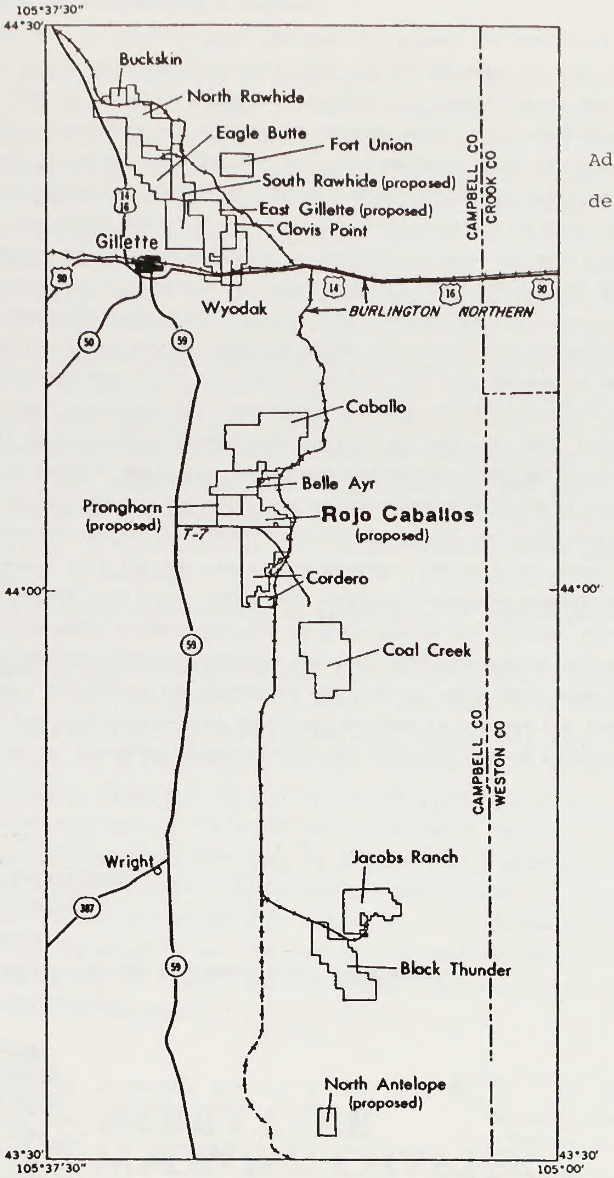
Very truly yours,

Charles M. Goodwin

Charles M. Goodwin
Manager, Project Development

CMG:lw

1 Figure I-1 has been changed to show the new boundary of the proposed South Rawhide mine.



Add lines in red,

delete line in green.

Figure I-1.—Location map, Rojo Caballos mine.

WYOMING CHAPTER
SIERRA CLUB
Secretary, Box 376, Kaycee, Wyoming

Mr.Robert Schueneman
Office of Surface Mining Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Sir:

1 What seems to be the major justification for opening the Rojo Caballos Mine pit, Campbell County and the Town of Gillette would not be able to finance the capital improvements they have invested in without the potential tax base of additional miners brought into the area by new mining activity, ignores the most important factor for opening any new coal mine: need. Is there a need for more electricity in the service areas the Rojo Caballos mine would supply with coal. Across the country electrical demand has dropped off in the last two years. This follows the simple economic law of price elasticity; or the more a good or service costs, the less people purchase it. The ramifications of this law have been felt in Wyoming and are reflected by the growth patterns Tri-State has experienced overthe last decade. Until 1978 Tri-State claimed they had an annual rate of growth of around 12%. In 1978 their growth rate fell to 2%, and this past year has seen a further decline to -1%. Tri-State G&T also claims that it has a tremendous overcapacity which it will not begin to use until the late 1980's -- and that assumes a projected growth of 7%. If the last two years can be taken as being indicative of the law of price elasticity, and if we can ssume that energy prices will continue to rise, then the 7% projection that Tri-State has offered may be overoptimistic and exaggerated. It may be that as more and more conservation measures are taken, and more and more renewable energies come into the energy supply grid; more and more over capacity will build up, meaning less and less need for centralized power generating facilities like the Laramie River Station that Tri-State is a partner in. This scenario seems far more likely than that of Tri-State, whichdoes not account for common sense money management or the laws of economics. And if there is a reduced need for the Laramie River Station, then there will be no need for the Rojo Caballos coal, and, hence, no need for the mine. Therefore, it would seem inopportune to open the Rojo Caballos pit before the direction of the U.S. energy crisis solution is more clearly defined.

"Not blind opposition to progress, but opposition to blind progress."

1 We have discussed site-specific and regional impacts in the environmental impact statement which can be directly related to the Rojo Caballos mine. Part of the market for the Rojo Caballos coal is known; this market is outside the region (Holcomb, Kansas, and Wheatland, Wyoming). A detailed discussion of the need for electricity in these other regional areas is beyond the site-specific scope of the environmental impact statement. We have discussed the relationship of this proposal to projected U.S. Department of Energy production goals. Although the analysis of end-use sectors for the coal versus other energy sources is not included in the environmental impact statement, we believe such analysis should be done and would be most appropriate in a regional environmental impact statement that is prepared to assist in decisions on regional energy choices, both regional demands for electricity and regional use of natural resources.

2 What is given as a reason to go ahead with the mine defies logic. The statement is made on pages ix and x that Gillette has invested in capital improvements to help public services meet the demands of increased population growth causedby the Rojo Caballos mine and others; and that: "Disapproval could, therefore, result in an adverse finacial impact on the City in that the expected population increase would not be there to pay for the improvements." This is circuitous reasoning because the coal mine is not intended to be opened to help pay for Gillette's capital improvements, rather, it is supposed to meet U.S. energy needs. If the needs are overestimated, as they seem to be; then the City of Gillette could do better by applying for state or federal subsidies for grants it could use against those improvements, than it could by asking for growth in its population that may not be able to pay for those improvements anyway. Moreover, Gillette should have taken into account a no growth situation when they decided on these capital improvements; and, therefore, they should have considered some contingency plans for paying for those improvements. Gillette may even have some problems with growth that may be unsolvable with money alone. One of those problems may be the supply of potable water. Still, the major point is that the justification given against not opening the mines did not address need, and sounded like non sequiturs because no examination was made of alternative ways to meet the same problem of payment for City's capital improvements.

2 Gillette's financial situation is not used as a justification for the mine. But if the mine is not approved, which is one alternative, there will be a financial impact to the city. The Council on Environmental Quality (CEQ) regulations (40 CFR 1500) require that the impacts of the alternatives be discussed.

3 There seems to be no need for the Rojo Caballos Mine, and it should not occur. In any case, it will not effect the national coal picture very much if it does or does not occur. It does not even seem to effect the Powder River coal picture very much: in 1980 it will account for only 7.3% of the total output for the area, and only 3.7% in 1990. The mine seems hardly worth the bother especially if you look at the population it will bring into Campbell County. The mine can only account for a 10% population factor in both the County, and the City of Gillette. Gillette cannot have expected 10% population growth to have played a significant role in financing the capital improvements it has invested in. Consequently, there seems to be no valid reason to open the mine -- even if its environmental consequences are judged to be "insignificant." It just does not seem to make economic sense to start a project that may never pay for itself, and that argument applies to both Gillettes capital investments and the Rojo Caballos Mine.

3 Your comment is noted. See the two previous replies.

Respectfully submitted by,
Mark Gordon, Nov. 18, 1980
Mark Gordon, Secretary
Wyoming Chapter of the Sierra Club

RPF Ecological Associates
727 Reba Place
Evanston, Illinois 60202

November 12, 1980

Robert Schueneman
Office of Surface Mining Reclamation and Enforcement
Brooks Towers
1020 15th St.
Denver, Colorado 80202

Dear Sir:

I am enclosing my comments on the Proposed Mining and Reclamation Plan, Rojo Caballos Mine, Campbell County, Wyoming, Draft EIS, OSM-EIS-3.

Generally I have reviewed the EIS with a particular interest in the impacts on vegetation and wildlife. I have the following comments:

1	1. On page II-5, under OTHER ALTERNATIVES, the name Pronghorn Mine should be capitalized in the second line of that paragraph.	The text has been changed.
2	2. On pages IV-17 and A-13, I assume that the methods to be used in moving the sage grouse lek will include artificial models and sound recordings as described by Eng and others, and Tate and others in their articles. Is this true? It would be good to clarify if the similar methods will indeed be used. For how many years will Mobil attempt these methods before giving up?	The sage grouse will be encouraged to use other leks by methods described by Eng and Tate. Mobil will monitor the grouse throughout the life of the mine as part of the annual monitoring program. The text has been changed to include this additional information.
3	3. On page IV-24, the potential injuries and fatalities appear grossly overstated. From Table I-1. I determine 445 average employees for the 24 mining years covered by the EIS. I assume round-the-clock mining, but assume only 8 hours of work per day per employee. If this assumption is correct, then man hours should be reduced by 1/3 based on 445/3 = 148. Using 365 days per year and 24 hours per day of mining, I compute 613 injuries and 5 deaths during the life of the mine.	The text has been corrected in reply to Mobil Oil Corporation's comment 13.
4	4. On page V-1, the public was concerned about invasion by Canadian thistle, but I find nowhere in the EIS comments that speak to this question in the process of revegetation. Will the reseeding mixtures stop the thistle?	The text has been revised to reflect this comment.
5	5. On page A-6, why are the temporary diversion ditches designed to carry only the 10-year, 24-hour stormwater, although sedimentation ponds are designed for the 25-year, 24-hour storm?	Temporary diversions are only required to carry the peak discharge from a 2-year precipitation event; permanent diversions are required to carry the peak from a 10-year event (30 CFR 816.43(a)(b)). Mobil has designed all their ditches for the 10-year event. Sedimentation ponds are required to contain the 10-year, 24-hour precipitation event with no outflow, with the spillways designed for the 25-year, 24-hour event (30 CFR 816.46(c),(i)).
6	6. On page A-14, I was unable to determine the exact location of the grouse lek in Section 11. This seriously hampers my ability to analyze how much unmined land is near the lek. Perhaps the figure A-5 could be improved in the final copy to make the lek more obvious.	The lek is located on a playa in the center of the SW1/4 of sec. 11. The Cordero mine is located directly to the south of the Rojo Caballos minesite and, thus, there would be no unmined land surrounding the lek.

Thank you for the opportunity to comment on this EIS. It appears to speak to most of my concerns about vegetation and wildlife with the few exceptions above. Please send me the Final EIS when available.

Respectfully yours,
Robert W. Guth
Robert W. Guth, Ph.D. --Ecologist

CHAPTER VI

REFERENCES CITED

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[1] Copies of environmental impact statements are available for consultation at: Office of Surface Mining, Brooks Towers, 1020 15th Street, Denver, CO.; U.S. Geological Survey, 875 Parfet Street, Lakewood, CO.; and U.S. Geological Survey, Room 2D324, National Center, Reston, VA.

APPENDIX A

The Applicant's
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APPENDIX A

THE APPLICANT'S PROPOSAL

This appendix summarizes the mining and reclamation plan (MRP) submitted by Mobil Oil Corporation to OSM, including measures proposed by Mobil to mitigate some of the impacts that would result from the mining. This MRP and the stipulations developed by OSM (Appendix B) form the preferred alternative that OSM is recommending to the Secretary of the Interior.

PREMINING

Once the Secretary of the Interior approves the mine plan, Mobil plans 2 years to build the mine support facilities before starting coal production. The access and coal-haul roads, a rail spur (to be shared with the proposed Pronghorn mine), and equipment assembly areas would be surveyed, graded, and surfaced as needed. The facilities area would be in the central part of the site (fig. A-1) and cover an area of about 170 acres. The facilities plan calls for the creation of two major building pads. The larger of the two pads would have the following major facilities on it:

- Office and laboratory building (height 15 feet 8 inches);
- Employee parking lots;
- Warehouse and changehouse building (heights ranging from 16 feet to 57 feet);
- Haul truck parking area;
- Diesel fuel oil storage area (height 32 feet); and
- Ammonium nitrate storage tanks (height 61 feet).

The smaller of the two pads would have the slot storage barn (height 88 feet) and a construction laydown area. The truck dump and turn area and the primary crusher and truck dump hopper would be located to the north of the larger cluster of facilities.

Mobil is continuing to work on facilities design planning to ensure maximum economic recovery of the coal. Final engineering design may result in changes such as construction of coal storage silos rather than barn storage, or single stage coal crushing rather than two stages.

From this point, the coal would be transported via conveyor belt through the secondary crusher (height 70 feet) and past the drive house (height 50 feet) to the train loadout and sampling station (height 146 feet).

Anticipated maximum water requirements of the Rojo Caballos mine are about 317,000 gallons per day (355 acre-feet per year). Water to be used for domestic consumption, plant and equipment cleaning, and fire control (57,300 to 317,000 gallons per day) would be obtained from three wells 1,200 to 2,600 feet deep in the Fort Union Formation, and located near the facilities area. Water for

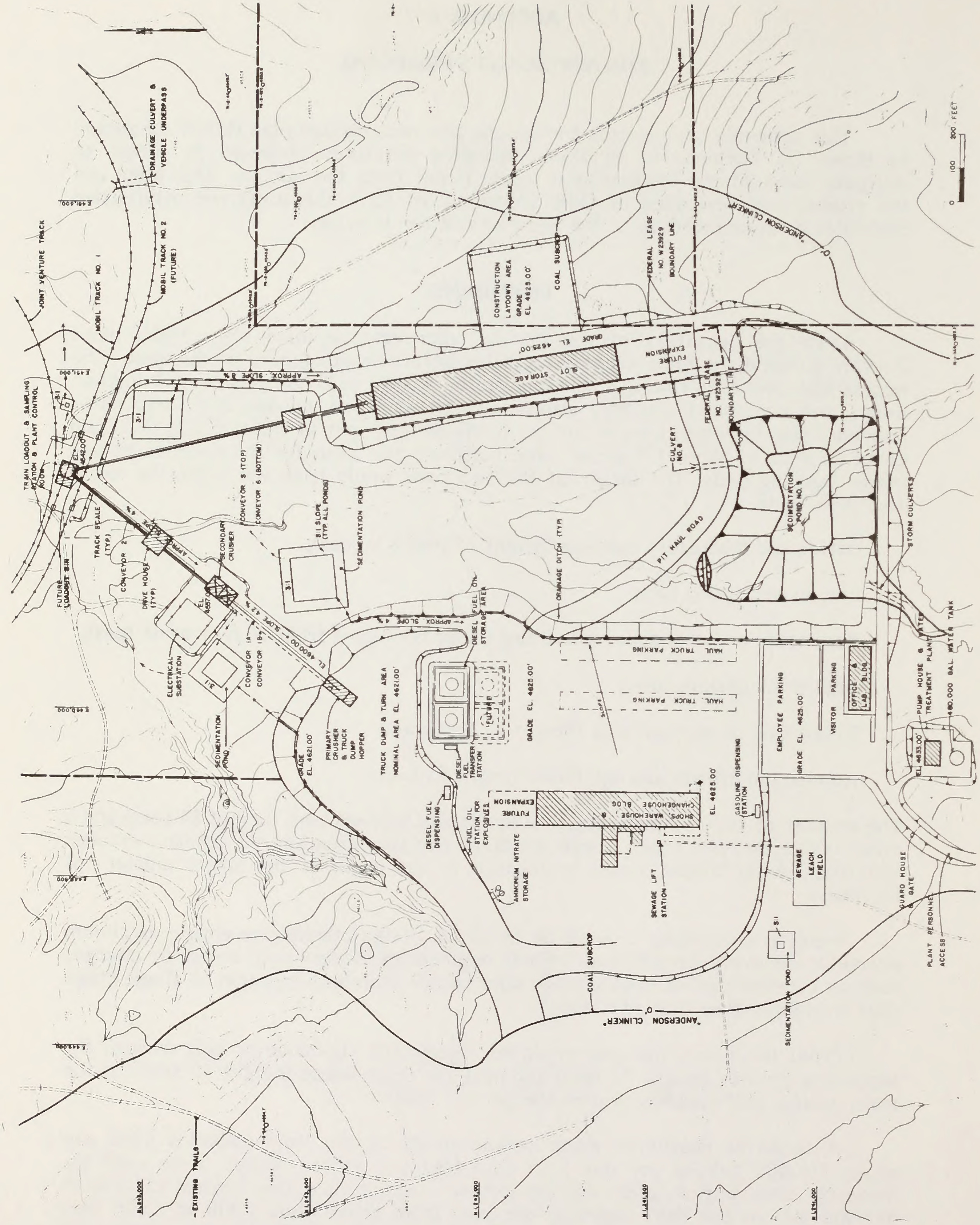

Figure A-1.--Facilities area, Rojo Caballos mine. (Furnished by applicant.)

dust suppression would come mainly from pit seepage, augmented from the supply wells as needed.

MINING

During the 24 years of mining, extraction of the coal and reclamation of the mined area would be integrated. The coal to be mined from the Wyodak-Anderson bed averages 65 feet in thickness. The proposed mining would use a sequence of topsoil stripping, truck-shovel overburden removal, coal extraction, truck-shovel spoil backfilling, spoils shaping, topsoil replacement, and revegetation. The acres disturbed each year and cumulative disturbance are shown in figure A-2.

The areas to be mined and the direction of mining are shown in figure I-2. Mining would begin in area 2N. During the 4th year of mining, pits would be opened in both area 2S and 1W. Mining would continue from two pits through the 21st year.

Topsoil would be removed by rubber-tired scrapers ahead of overburden removal (fig. A-3). Topsoil from surface facility areas, haul roads, and the initial box cut would be stockpiled until needed for final reclamation. During the second year of mining when reclamation can begin, topsoil would be removed from areas scheduled for mining and replaced on shaped spoil in a continuous operation. A total of 3,745 acres would eventually be stripped of topsoil and about 19 million cubic yards of topsoil replaced.

After removal of the topsoil, the overburden would be drilled and blasted. It is anticipated that about 75 percent of the overburden would require blasting. Mining shovels would load the overburden into trucks for hauling around the ends of the pit for backfilling in the mined-out area or hauling to an overburden stockpile when necessary.

Overburden would be removed in 45 to 50-foot vertical lifts. The uppermost overburden lift thickness would vary with total overburden thickness but would not exceed safe working heights. Working benches 135 feet to 150 feet wide would be maintained for each overburden lift. These benches would form a highwall with a stairsteplike appearance. Ramps would be maintained on each bench for access from bench to bench.

During the first 3 years of mining, about 7.6 million cubic yards of overburden would be removed from the initial mining area and temporarily stockpiled. An additional 27 million cubic yards would be stockpiled during years 14 to 17. Stockpiles would be shaped and temporarily revegetated to minimize erosion. These stockpiles would be used to fill the final mining cut.

After overburden removal, the top of the coal would be cleaned by rubber-tired bulldozers and/or scrapers. The coal would then be drilled and blasted. After the coal is blasted it would be loaded by 36 to 40 cubic-yard mining shovels into 120 to 180 ton trucks. The loaded coal trucks would then proceed out of the pit through a system of ramps to the truck dump.

The coal would be mined in two lifts, with the upper mining lift preceding the lower lift. The lifts would vary from about equal thickness to a minimum thickness of about 10 feet. In the eastern part of the permit area (area 2S), a 2- to 3-foot

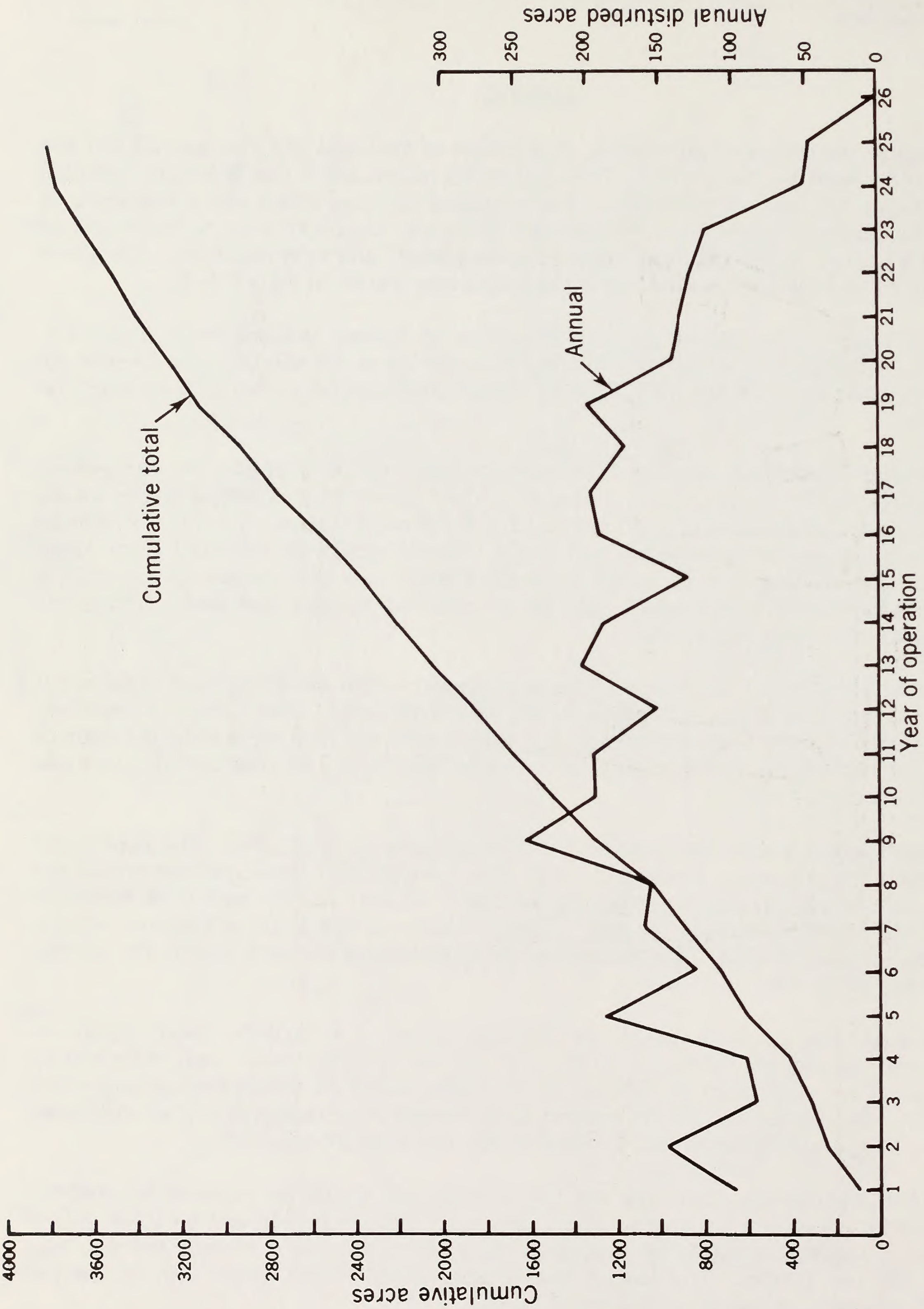

Figure A-2.--Disturbed acres, Rojo Caballos mine.

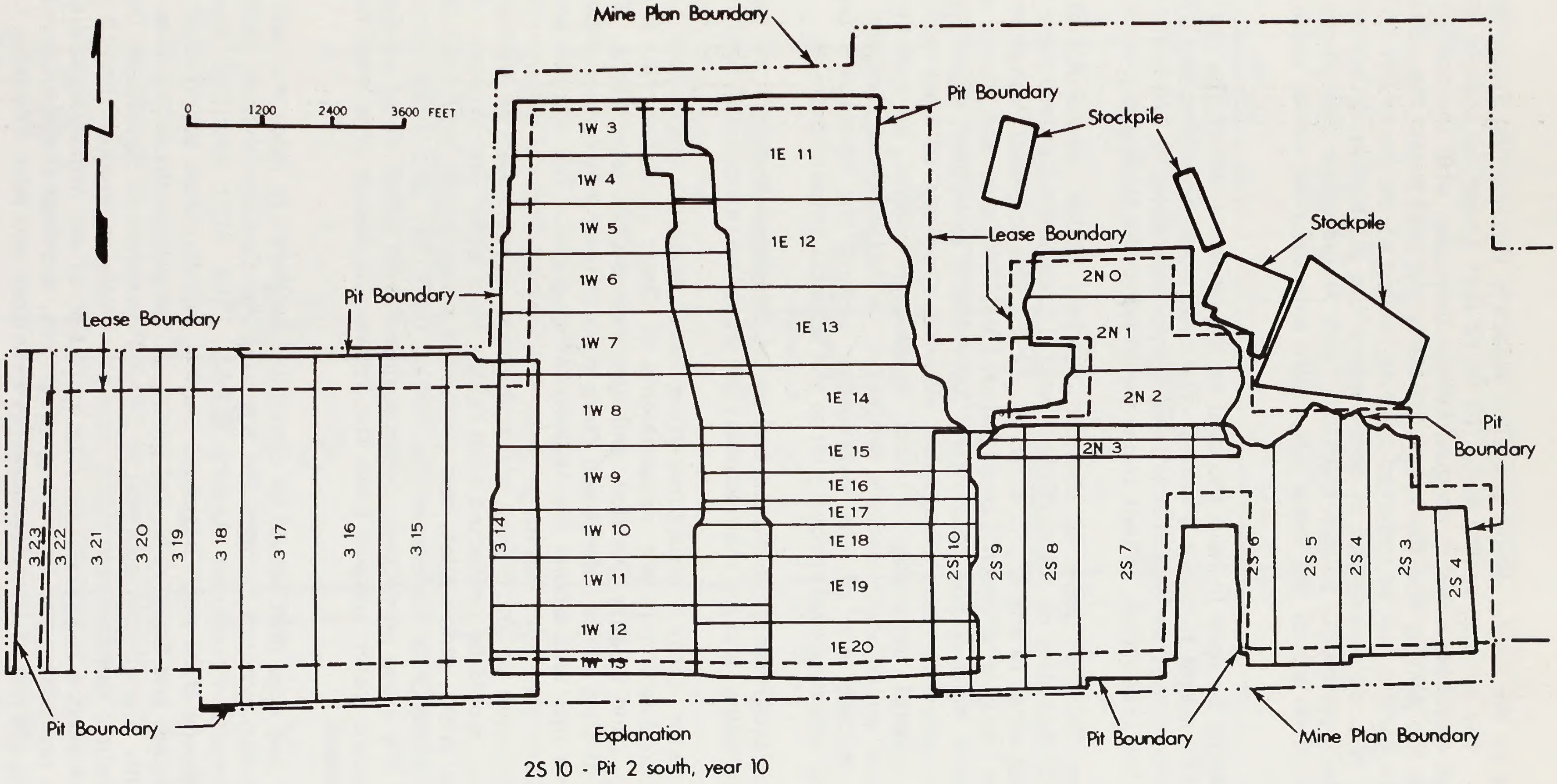

Figure A-3.--Topsoil removal progression and stockpile areas, Rojo Caballos mine. (Furnished by applicant.)

parting occurs in the coal. Mobil plans to separate this parting from the coal during mining. The parting occurs about 10 to 12 feet above the base of the coal seam. The coal would be mined in unequal lifts in this case, with the top lift being the coal above the parting and the lower lift being the coal below the parting. In this manner the parting can be removed prior to mining of the lower lift. Unequal coal lifts may also be maintained in areas where the pit bottom is wet and it is hard for the haulage trucks to get traction. This would allow the trucks to be loaded and travel on top of the lower lift, with only the coal shovel operating in the pit bottom.

Trucks would be used to haul the coal to the crushers, where the coal would be reduced in two stages to minus 2 inches. The coal would be stored in a 100,000-ton covered slot-storage barn until it is loaded onto unit trains of 110 coal cars for shipment. At full production, 26 unit trains would leave the mine every week.

The Rojo Caballos mine is bounded by two active mines--AMAX Coal Company's Belle Ayr mine on the north and Sun Oil Company's Cordero mine on the south, excluding secs. 16 and 17, T. 47 N., R. 71 W. The proposed Pronghorn mine, a planned joint venture between Consolidation Coal Company and Mobil, adjoins the Rojo Caballos mine on the northwest. Agreements have been signed between Mobil and the adjacent mine companies allowing recovery of coal up to the boundary of mineral ownership. Under these agreements, an operator can "backslope" onto an adjacent owner's property. A backslope agreement allows removal and replacement of the overburden beyond the operator's property boundaries, thus allowing coal recovery up to the mineral ownership limits.

As mining progresses, the buried and aerial telephone lines, the oil pipeline, the electric powerline, and the main access road would be relocated as needed.

Surface-water control structures have been designed and would be constructed in accordance with the requirements of Draft Guideline No. 8 of the Wyoming DEQ, Land Quality Division, and appropriate OSM regulations. Temporary diversion ditches would collect and carry runoff from undisturbed areas away from the active pits and around the sedimentation ponds. The ditches would be designed to carry the peak discharge from a 10-year, 24-hour storm. Natural channels downstream of the mine, whose drainage areas would be increased by these diversions, would be protected with riprap from scour and erosion. Runoff from disturbed areas, stock piles, and reclaimed areas would be routed through sedimentation ponds prior to release (fig. A-4). Table A-1 lists these ponds with their size and the areas protected. Some sedimentation ponds would also be used to settle and store water pumped from the active pits before it is used for dust control or released.

Fugitive and coal dust would be controlled as shown in table A-2 and under conditional permits granted by both the Wyoming Air Quality Division (AQD) and U.S. Environmental Protection Agency (EPA). The AQD specified maximum allowable emissions from each baghouse control facility, dust suppression treatment for all access and haul roads, and paving of the permanent access road to the processing plant. Conditional approval in EPA's Prevention of Significant Deterioration (PSD) Permit included restricting mine processing to no more than 15 million tons of coal per year; a 20-percent opacity limitation of any atmospheric discharge from any coal processing and conveying equipment, and coal storage, transfer, or loading system; and use of Best Management Practices and Best Available Control

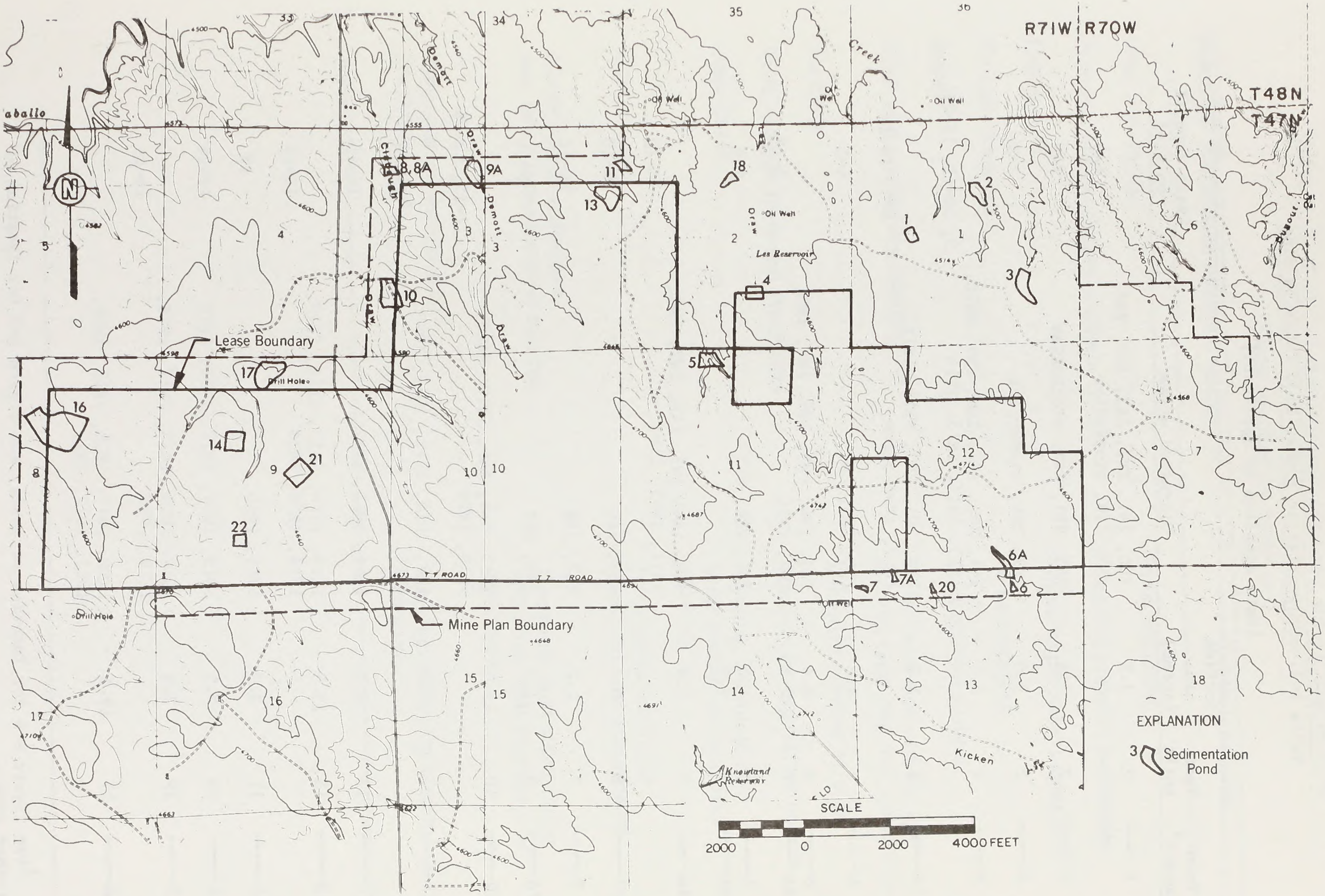

Figure A-4.--Location of sedimentation ponds, Rojo Caballos mine. (Furnished by applicant.)

Table A-1.--Sedimentation ponds, Rojo Caballos mine

[Data supplied by applicant]

Pond number[1]	Year built	Surface area (acres)	Disturbed areas[1]	Years topsoil replaced
1-----	2	1.9	2N0, 2N1, 2N2, 2N3, 2S3, 2S4, 2S5, 2S6, stockpiles	4-9
2-----	2	7.5	2S3, 2S4, 2S5, stockpiles	7-9
3-----	2	9.0	2S3, 2S4, stockpiles	7-8
5-----	2	3.1	2N1, 2N2, 2S7, 2S8, 2S9, 2S10, 1E13, 1E14, 1E15, 1E16	5, 10-12, 18-21
18-----	2	5.2	2N0, 2N1, 2N2, 1E11, 1E12, 1E13, stockpiles	4-5, 14-17
4-----	3	4.8	2N0, 2N1, 2N2	4-5
8-----	5	2.4	1W3, 1W4, 1W5, 1W6, 1W7, 1W8, 1W9, 1W10	7-18
8A-----	7	3.5		
6-----	6	1.3	2S3, 2S4, 2S5	7-9
6A-----	8	6.9		
9A-----	7	5.9	1W3, 1W4, 1W5, 1W6, 1W7, 1W8, 2N11, 2N12, 2N13	7-20
20-----	8	0.7	2S5, 2S6	9-10
7-----	9	1.2	2S7, 2S8	11-12
7A-----	9	1.5	2S6, 2S7	9-11
10-----	10	12.0	2N13, 1W8, 1W9, 1W10, 1E18, 1E19, 1E20	11-12, 22-24
21-----	11	5.8	1W9, 1W10, 1W11, 1W12, 1W13, 1W14	18-19
11-----	13	2.5	1E11, 1E12, 1E13	14-15
13-----	15	13.5	1E13, 1E14, 1E15, 1E16, 1E17, 1E18, 1E19, 1E20	16-24
22-----	17	3.2	1W15, 1W16	19
14-----	19	9.5	1W15, 1W16, 1W17, 1W18, 1W19	19-24
17-----	19	3.8	1W14, 1W15, 1W16, 1W17, 1W18, 1W19, 1W20	19-25
16-----	25	19.5	1W16, 1W17, 1W18, 1W19, 1W20, 1W21, 1W22, 1W23	25-

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[1] See figure A-4 for location of ponds, and figure A-3 for location of disturbed areas.

Table A-2.--Fugitive dust control measures, Rojo Caballos mine

(Data supplied by applicant)

Potential particulate emission source	Control measure
Coal conveyors	To be enclosed.
Primary and secondary crushers	Negative pressure baghouses.
Silo load-in	Negative pressure baghouses.
Rail car load-out	To be enclosed.
Boiler	Dust control system.
Coal and overburden blasting	Water injection and dry and drilling type bag dust collection.
Scraping	Minimize number of trips.
Wind erosion from soil stockpiles	Temporary vegetative covers.
Haul roads	Wetting, chemical dust suppression, and periodic grading.
Access road	Hard surfaced and/or chemical dust suppression.
Construction activities and other miscellaneous sources	Chemical dust suppression and other best management practices.
Vehicular emissions from employee trips	Employee bussing system proposed.

Technology. Mobil has also proposed to monitor air quality impacts with a network of four Hi-volume air samplers to measure total suspended particulates.

RECLAMATION

Mobil's reclamation plan provides for reestablishment of a vegetative system comparable in cover and density to that now existing on the permit area. The applicant proposes to return the land to a postmining use of livestock grazing and wildlife, which is reflected in the seed mixtures and plant materials. Six of the sediment ponds would remain on the site following mining to provide for stock and wildlife uses. These land uses conform with the historical and premining land use.

Bulldozer-mounted rippers or agricultural tillage equipment would prepare the surface of the regraded overburden for topsoiling. Topsoil would be replaced in lifts of approximately 1 foot thick until sufficient thickness (table A-3) has been obtained to allow the vegetative growth necessary for the postmining land use. Between 2 and 5 feet of topsoil material, including at least 6 inches of A-horizon soil on top, would be distributed over the reclaimed areas. Proper combinations of soil amendments would be used to develop optimum plant growth under prevailing conditions at the time of reclamation. The final topography (fig. IV-1) would be similar to present topography.

The applicant has selected two permanent seed mixes: rangeland revegetation mixture, deep soil mix, for reclaimed areas with 3 to 5 feet of topsoil; and rangeland revegetation mixture, medium soil mix, for reclaimed areas with 2 to 3 feet of topsoil (table A-4). Additional seed mixtures are proposed for temporarily revegetated backfill and for stabilization. In addition to seeding, shrub transplants or hand-planted tublings would be made in three mixtures: shrubland revegetation mixture, sagebrush; shrubland revegetation mixture, mesic; and shrubland revegetation mixture, mesic conditional (table A-4). Big sagebrush and silver sagebrush would be transplanted at rates of 1,160 plants per acre and 40 plants per acre, respectively. The remaining shrub species would be segregated by species in patches and in densities comparable to the current average density of all shrub species, i.e., 1,200 plants per acre. Forty plains cottonwood trees would be planted with a tree spade around the two large permanent ponds on the western half of the site. A preparatory crop (wintergraze) would be used on temporarily revegetated overburden areas (25 pounds of pure live seed per acre) and would be used in conjunction with additional perennial species for all overburden and topsoil stockpile stabilization areas.

Mobil states that seeding would follow topsoil placement as close as possible (maximum 45 days) within the constraints of seasonal variation in accessibility and soil moisture conditions. Seeding would be done during the first normal period of favorable planting conditions (March through May or September through early December). All seeding would be accomplished by broadcast or drill seeding. Determination of the seeding method for a specific area during a specific planting season would be made on a case-by-case basis and after consultation with the appropriate regulatory authorities.

Mobil would assess the need for fertilization through a soil-testing program prior to revegetation activities.

Table A-3.--Topsoil replacement depths, Rojo Caballos mine

(Note: Ranges in depths will be used to provide a transition between replacement zones and undisturbed areas)

Postmining plant community	Topsoil depth (feet)
Rangeland revegetation mixture:	
Deep soil	3-5
Medium soil	2-3
Shrubland revegetation mixture:	
Sagebrush	2-5
Mesic	2-5
Mesic conditional	2-5

Table A-4.--Revegetation mixtures, Rojo Caballos mine

[Note: The shrubland revegetation mixtures would be superimposed on the rangeland revegetation mixtures]

Species		Seeding rate (pounds of pure live seed per acre)	Planting rate (plants per acre)
Scientific name	Common name		
Rangeland revegetation mixture, deep soil			
Grasses:			
Agropyron dasystachyum	Thickspike wheatgrass	4.0	NA[1]
Agropyron riparium	Streamback wheatgrass	3.0	NA
Agropyron smithii	Western wheatgrass	4.0	NA
Agropyron trichophorum	Pubescent wheatgrass	2.0	NA
Bouteloua curtipendula	Side-oats grama	0.5	NA
Bromus inermis	Smooth brome	3.0	NA
Calamovilfa longifolia	Prairie sandreed	1.5	NA
Elymus cinereus	Basin wildrye	1.0	NA
Koeleria cristata	Prairie junegrass	1.5	NA
Oryzopsis hymenoides	Indian ricegrass	2.0	NA
Poa compressa	Canada bluegrass	1.0	NA
Poa pratensis	Kentucky bluegrass	1.0	NA
Sporobolus airoides	Alkali sacaton	1.0	NA
Stipa viridula	Green needlegrass	3.0	NA
Forbs (legumes):			
Astragalus cicer	Cicer milkvetch	0.5	NA
Medicago sativa	Alfalfa	0.5	NA
Onobrychis viciaefolia	Sainfoin	2.0	NA
Shrubs:			
Atriplex canescens	Fourwing saltbush	2.0	NA
Rangeland revegetation mixture, medium soil			
Grasses:			
Agropyron dasystachyum	Thickspike wheatgrass	4.0	NA
Agropyron elongatum	Tall wheatgrass	2.0	NA
Agropyron riparium	Streambank wheatgrass	1.5	NA
Agropyron smithii	Western wheatgrass	4.0	NA
Agropyron spicatum	Bluebunch wheatgrass	1.0	NA
Agropyron trichophorum	Pubescent wheatgrass	2.0	NA
Buchloe dactyloides	Buffalo grass	0.5	NA
Bouteloua curtipendula	Side-oats grama	1.0	NA
Bouteloua gracilis	Blue grama grass	1.0	NA
Bromus inermis	Smooth brome	3.0	NA
Calamovilfa longifolia	Prairie sandreed	2.0	NA
Koeleria cristata	Prairie junegrass	1.0	NA
Rangeland revegetation mixture, medium soil			
Grasses:			
Oryzopsis hymenoides	Indian ricegrass	1.0	NA
Sporobolus airoides	Alkali sacaton	1.0	NA
Sporobolus cryptandrus	Sand dropseed	0.5	NA
Forbs (legumes):			
Astragalus cicer	Cicer milkvetch	0.5	NA
Onobrychis viciaefolia	Sainfoin	3.0	NA
Shrubs:			
Atriples canescens	Fourwing saltbush	2.0	NA
Shrubland revegetation mixture, sagebrush			
Shrubs:			
Artemesia tridentata	Big sagebrush	NA	1,160
Shrubland revegetation mixture, mesic			
Shrubs:			
Salix exigua	Coyote willow	NA	around ponds
Ribes cereum	Wax currant	NA	around ponds
Rosa woodsii	Woods rose	NA	around ponds
Prunus virginiana	Common chokecherry	NA	around ponds
Trees:			
Populus sargentii	Plains cottonwood	NA	40 (total)
Shrubland revegetation mixture, mesic conditional			
Shrubs:			
Ribes cereum	Wax currant	NA	
Rosa woodsii	Woods rose	NA	
Rhus trilobata	Skunkbush sumac	NA	1,200
Artemesia tridentata	Big sagebrush	NA	
Artemesia cana	Silver sagebrush	NA	
Shepherdia argentea	Silver buffaloberry	NA	

[1] NA = Not applicable.

All reseeded areas (topsoiled or revegetated overburden) would be mulched with cellulose wood fiber unless it can be demonstrated that equal or better revegetation and sediment control can be obtained without mulching. Areas of less than 8H:1V slope would be mulched at a rate of 1,500 pounds per acre; areas greater than 8H:1V slope would be mulched at a rate of 2,000 pounds per acre.

The reseeded areas would be protected by the fence that surrounds the mine. In addition, a fence would be constructed to the west of the affected area to allow grazing on the western part of the permit area until mining activities reach that area. Livestock would be excluded until the reseeded areas can withstand grazing pressures and have developed a productivity equal to or better than premining plant communities. The proposed postmining plant communities are shown in figure A-5.

In the areas adjacent to other mines and covered by a backslope agreement, the first operator to mine would remove the coal to the ownership line. The cut would be backfilled and the exposed slope, if any, would be graded to not exceed 3H:1V. This slope would be temporarily revegetated, using additional contouring and higher mulching rates to control erosion, and maintained until the second operator redisturbs the area. At this time, the backslope area would be backfilled and graded to the approximate original contours, allowing for lowering due to coal removal and swelling of the replaced overburden. The area would be graded to blend into the adjacent areas. During the temporary reclamation stage, any exposed coal would be covered by at least 8 feet of overburden and the elevation of the toe of the slope would be approximately the same as the top of the lowest overburden bench.

To minimize disturbances and adverse impacts to wildlife in the area, the company included vegetation of value to wildlife in their revegetation seeding mixtures (table A-4). Fencing that would facilitate deer and antelope passage in accordance with the Wyoming Game and Fish Department's recommendations would be used throughout the mine area. Boulder piles would be distributed over the area to provide shelter and den sites for mammalian predators and their various prey species, and the six stock ponds would provide habitat for amphibians and waterfowl. Powerlines would be designed to minimize impacts to raptors in accordance with REA Bulletin 61-10. Use of the company-provided bus service would reduce road kills of deer and antelope.

To mitigate destruction of a sage grouse lek in section 11, the sage grouse will be encouraged to use other leks by methods described by Eng and others (1979) and Tate and others (1979). Mobil will monitor the grouse throughout the life of the mine as part of its annual monitoring program.

ASSISTANCE TO THE COMMUNITY

The applicant has developed a socioeconomic program to alleviate some of the proposed mine's impacts on the community. The four essential elements of this program are as follows:

- Construction worker housing;
- Permanent worker relocation assistance programs;
- Assistance to the City of Gillette; and

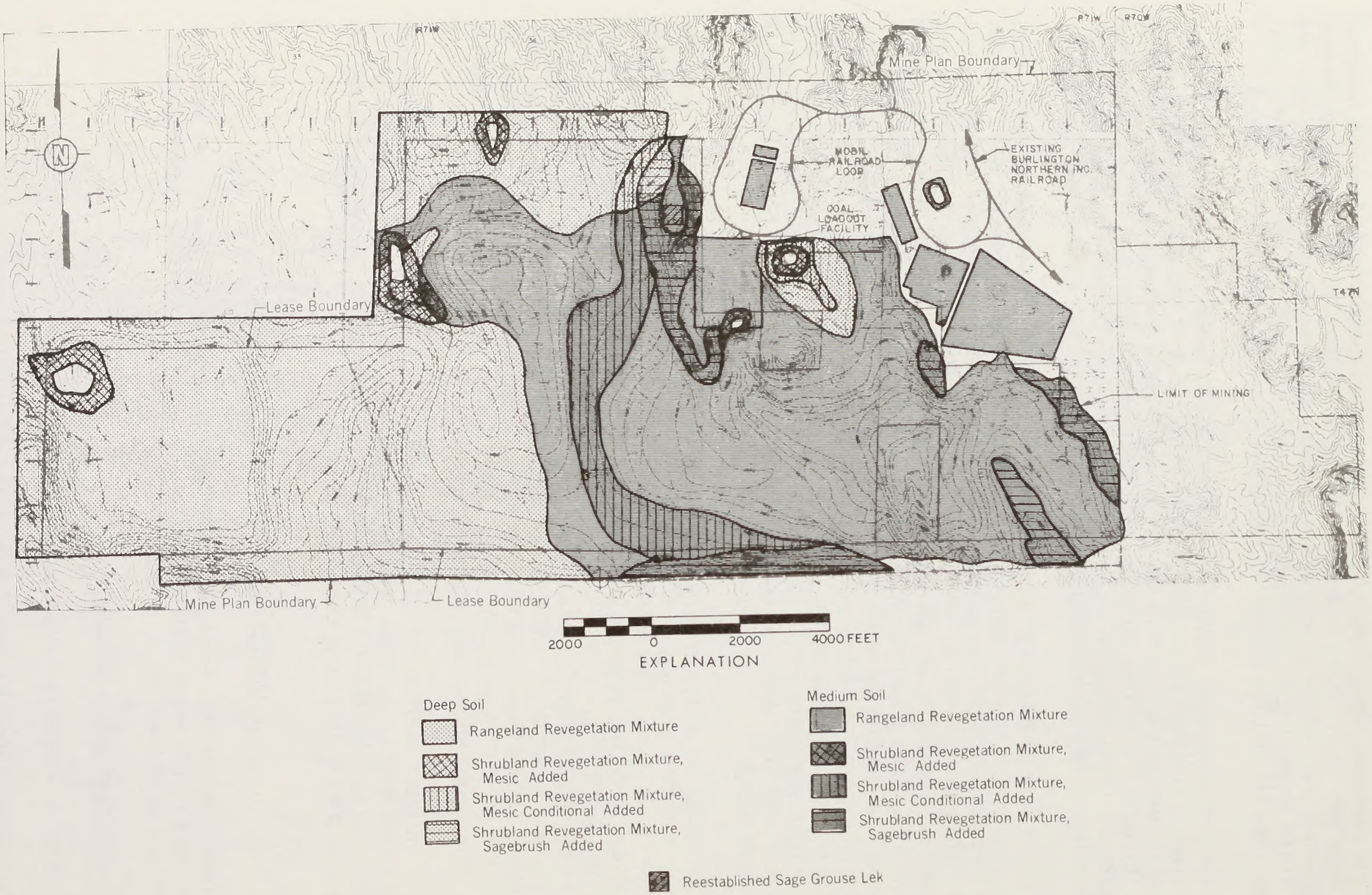
R7IW
R7IW
R70W
T47N
Mine Plan Boundary
EXISTING BURLINGTON NORTHERN INC. RAILROAD
MOBIL RAILROAD LOOP
COAL LOADOUT FACILITY
LIMIT OF MINING
Lease Boundary
Mine Plan Boundary
Lease Boundary
N
2000 0 2000 4000 FEET
EXPLANATION
Deep Soil
Rangeland Revegetation Mixture
Shrubland Revegetation Mixture, Mesic Added
Shrubland Revegetation Mixture, Mesic Conditional Added
Shrubland Revegetation Mixture, Sagebrush Added
Medium Soil
Rangeland Revegetation Mixture
Shrubland Revegetation Mixture, Mesic Added
Shrubland Revegetation Mixture, Mesic Conditional Added
Shrubland Revegetation Mixture, Sagebrush Added
Reestablished Sage Grouse Lek

Figure A-5.--Postmining plant communities, Rojo Caballos mine. (Furnished by applicant.)

- Related community impact mitigation measures.

Construction worker housing

The Rojo Caballos mine would employ up to 540 workers during construction. More than 20 percent of the required construction manpower is expected to come from the local area and, therefore, would not impact directly on housing availability. Most of the incoming workers would require housing in mobile home parks. The applicant would negotiate with selected park owners for pre-lease, or guaranteed space availability, agreements to ensure that locations for mine employees would be available as they are needed while, at the same time, protecting the park owner from carrying unused lots that were developed at Mobil's request.

Of the 200 to 250 total spaces to be reserved by the applicant in 1981 through 1983, 70 would be allotted for recreational vehicles, 30 would be equipped with mobile home lease units that would serve as 2- to 3-person living units, and the remaining 100 to 150 spaces would be for those workers wishing to move or purchase their own mobile homes. This breakdown is based on estimated projection; actual space breakdown will depend on local hire rate and location of subcontractors for mine construction work.

Construction employment would peak at 363 in the third quarter of 1981, with a second peak of 470 in the second quarter of 1982. As construction workers vacate their housing units, these units would become available for the permanent workers to settle in if they so desire.

Permanent worker relocation assistance programs

The majority of the permanent workers would come from outside the Gillette area. These permanent workers are projected to be mostly younger people who would not have large savings or equity in a home. The applicant plans to provide assistance to the Rojo Caballos employees to help them qualify for conventional home mortgage loans at the earliest possible date and to defray the cost of relocation. By enabling employees to purchase permanent housing, this mitigation strategy would also have the following effects:

- Expand housing development in Gillette and help maintain a balance between housing supply and demand; and

- Stimulate the Gillette economy through local involvement in housing construction and development.

The principal features of this assistance program are:

- Relocation expense.--The proposed program would be designed to cover moving expenses including payment for moving van services and reimbursement of temporary living quarter expenses. For skilled craft workers, the program will include payment of commissions on the sale of housing already owned for those employees who own housing at the time they are hired, and assistance with closing costs on the purchase of a new home. The intent is to defray expenses normally associated with moving, thus assisting permanent employees in making a mortgage downpayment in Gillette.

- Down payment assistance.--The proposed program provides for payment of a sum of money, based upon the employee's salary level, to the permanent employee when he/she selects a housing unit. This would further assist the employee who desires to purchase a housing unit in meeting downpayment requirements.

- Interest assistance.--Current high interest rates may prevent employees from meeting minimum qualifications for mortgage loans because of the impact of high interest rates on monthly payments. The program addresses this situation by making a subsidized interest rate program available to the Rojo Caballos worker. This program effectively reduces monthly interest payments.

Assistance to the city of Gillette

Mobil has purchased 1.8 million dollars worth of local improvement district bonds. Revenue from the bonds will be used to extend existing city services, such as streets, sewers, water, and electricity, into developable areas within the present city boundary.

Related community impact mitigation measures

The nine programs described in this section complete the mitigation package. Mobil recognizes that, once newcomers to Gillette are settled in homes, they would have other needs and concerns. The programs described in this section would increase the opportunities within the area for a better quality of living by adding to the educational programs available, adding to library facilities, and increasing the capabilities and strengths of the Powder River Arts Council.

- Local banking accounts.--Accounts would be established by Mobil for local supply purchases and other practical expenditures with selected local banks. This practice would tend to provide additional financing capability in the local sector, thereby providing support for private sector growth and infrastructure development.

- Employee busing program.--Bus service originating in Gillette would be provided by Mobil to and from the Rojo Caballos minesite for its employees. Buses with a 40-passenger capacity would be purchased and utilized for this purpose during the life of the mine. When not in demand for employee transportation (weekends), the buses could be used for employee/community recreation trips.

- Video-cassette recorder system.--Mobil would provide the Campbell County library with a VCR/Disc recording system consisting of a video cassette recorder, a video sound camera system, and large-screen television-projection system, a regular color television set, and miscellaneous equipment. Mobil would also donate six films annually. The system would be operated and maintained by the library staff.

- Improvement of local medical services.--Mobil would continue to participate in the doctor recruitment program and other areas to improve medical services. The applicant plans to provide annual donations to help fund the program.

- Powder River Arts Council.--Mobil would continue to support the Powder River Arts Council. This program would be intended to expand the cultural opportunities of Campbell County citizens.

- Campbell County retail sales permit.--Contractors would be requested to obtain a county retail sales permit. Although the permit has no effect on the cost of goods or services, it would provide that the city of Gillette receives an increased share of the sales tax collected by the State.

- Education program for employees.--The workforce of the Rojo Caballos mine would be eligible for company educational benefits. Periodic self-study in-house educational programs would be available to employees, as well as a full tuition reimbursement program for job-related courses taken at approved academic institutions.

- Matching gifts program.--Through the matching gifts program, the Mobil Foundation matches on a two-for-one basis employee donations (above $25) to educational institutions, hospitals, and arts organizations. This increases the gift to the institution and provides a method for added employee involvement in community affairs.

- Socioeconomic impact monitoring program.--The applicant would establish a monitoring program before mine construction. A well-designed monitoring program would ensure that the mitigation strategies are accomplishing their designed purpose.

APPENDIX B

Stipulations

APPENDIX B

STIPULATIONS

OSM has identified the following stipulations which would ensure that the MRP complies with Federal and State regulations implementing the Surface Mining Act and other Federal and State laws. The term "regulatory authority" means the Wyoming Department of Environmental Quality and the Department of Interior, OSM, unless and until the Wyoming permanent cooperative agreement provides otherwise.

1. The applicant shall regrade and reseed rills and gullies deeper than 6 inches that develop in regraded and topsoiled areas unless these do not interfere with the postmining land use.

2. Within 3 months after acceptance of Departmental approval of the MRP, the company will provide to the regulatory authority the planned duration of potentially deleterious material stockpiles and will provide details of specific protective measures for erosion control.

3. The company must place a minimum of 4 feet of non-toxic material, exclusive of topsoil, over all acid-forming or clayey materials. Potentially acid-forming material must be placed below the level of ground-water fluctuations so that this material is not exposed to oxidation, One exception is the eastern portion of the mine area where acid- and toxic-forming materials must be placed above the ground-water level but below the surface. All toxic material must be placed above the area of ground-water fluctuations and below the surface.

4. In areas where the diversion ditch increases the contributing area to a natural channel, the applicant shall install erosion protection equipment in the natural channels downstream of the diversion ditches. In particular, the applicant shall protect the drainage area of the unnamed draw heading in the NE¼ sec. 3 from increased scour or erosion through the use of riprap, energy dissipators, or other methods approved by the regulatory authority.

5. During construction, appropriate barriers shall be installed to prevent seepage around the decant pipes in the embankments.

6. Sufficient pump capacities shall be provided to allow a maximum detention time of 30 days for each sediment pond.

7. The applicant will submit to the regulatory authority, within 180 days after acceptance of Departmental approval of the MRP, quantitative estimates of gully erosion and the natural sediment discharges from the undisturbed areas within the contributing areas to each sedimentation pond.

8. Within 30 days after acceptance of Departmental approval of the MRP, the applicant will submit data demonstrating the adequacy of the spillway design for the 100-year, 24-hour precipitation event for ponds 2, 3, 10, 13, 14, 16, and 21.

9. The embankment of each sediment pond shall be at least 1.0 foot above the water surface in the pond with the emergency spillway flowing at design

depth. The elevation of the emergency spillway will, at a minimum, be 1.0 foot above the crest of the principal spillway.

10. The ephemeral streams and the channels below the sediment ponds shall be sampled for chemical quality and the discharge measured whenever there is a flow event. A list of chemical constituents that are to be analyzed shall be submitted to the regulatory authority for approval within 3 months after acceptance of Departmental approval of the MRP.

11. Ground-water quality shall be monitored on a quarterly basis at the beginning of the mining and postmining periods. If, after 2 years the changes in quality are minimal, sampling may be done semiannually thereafter. The spacing of the monitoring wells will be the same as during the premining period.

12. Ground-water potentiometric levels shall be monitored monthly during the mining and postmining periods, using as many monitoring stations as proposed for the premining period.

13. Any exploratory or monitoring well which is to be used as a water-supply well shall be approved by the regulatory authority prior to such use.

14. All known exploration holes, boreholes, and wells will be capped, sealed, backfilled, or otherwise properly managed to keep acid or other toxic drainage from entering the ground water.

15. Within 6 months after acceptance of Departmental approval, the operator shall submit an acceptable projection of the postmining terrain over the Rojo Caballos Mine site. The projection shall show, at a minimum, the postmining contours along the borders of the adjoining mines (Belle Ayr, Pronghorn, and Cordero). The projection shall be accompanied by all necessary information to identify the methods and criteria used, and to show the modifications proposed to the existing mine plan to achieve compliance with the requirements for achieving suitable topography in terms of land use, wildlife habitat, and surface water hydrology.

16. Within 3 months after acceptance of Departmental approval of the MRP, the company shall submit revised seed mixtures (permanent and temporary) that reduce or eliminate alfalfa, crested wheatgrass, and smooth brome, or provide documentation to justify the proposed seed mixtures. This information will be evaluated for approval by the regulatory authority.

17. Within 3 months after acceptance of Departmental approval of the MRP, the company will submit to the regulatory authority for approval the seeding rates for each seed mixture for both drilling and broadcast methods.

18. The company will submit to the regulatory authority for approval, within three months after acceptance of Departmental approval of the MRP, the amount of each shrub species that will be planted in each shrubland mixture and a demonstration/clarification of why only one species occurs in the SRMs shrub mix and the pattern/species composition of the shrub plantings (i.e., number of plants per clump; single or multiple species).

19. The company will submit to the regulatory authority for approval the grazing management plan for the control/reference areas within three months after acceptance of Departmental approval of the MRP.

20. Vegetation on reclaimed areas will be monitored during each growing season for a period of three growing seasons to determine the dominance (percent cover composition) of the introduced species on the reclaimed areas. If, after 3 years, data indicate that introduced species dominate the site (the percent cover of introduced species exceeds 40 percent of the total), then the seed mixture will be reevaluated by the company and the regulatory authority.

21. The company will submit to the regulatory authority for approval, within 3 months after acceptance of Departmental approval of the MRP, the rationale and/or data which demonstrate that the control/reference areas are representative of premining conditions. This information to be submitted will include a map indicating the location of each control/reference area and a description (plant species, cover, production) of each control/reference area.

22. The company will submit to the regulatory authority, within 3 months after acceptance of Departmental approval of the MRP, revised methodologies and statistical procedures that are consistent with the requirements of the Wyoming Department of Environmental Quality Guidelines of 1979 for establishing a premining vegetation inventory.

23. The company will submit to the regulatory authority for approval, within 3 months after acceptance of Departmental approval of the MRP, the following:

   . The size of trees and shrubs that will be planted or transplanted.

   . The acreage of each plant community to be disturbed.

24. Within three months after acceptance of Departmental approval of the MRP, the company shall consult with the U.S. Fish and Wildlife Service and submit to the regulatory authority a plan for mitigating impacts to the two active ferruginous hawk nests on the permit area and the active golden eagle nest outside the southwest boundary of the permit area.

25. The company will submit to the regulatory authority for approval, within three months after acceptance of Departmental approval of the MRP, the location and size of the permanent stock ponds that will be established following mining.

26. The company will, within 3 months after acceptance of Departmental approval of the MRP, submit for approval a description of pond management in relation to: 1) the use of the ponds by waterfowl, 2) attraction of big game to the ponds and enhanced habitat near the ponds, 3) use of the ponds by livestock, and 4) the effect of the ponds on land use of the areas surrounding the mine plan area.

27. Within 1 week of the company's acceptance of Departmental approval of the mine plan, the company must submit a certificate of public liability insurance policy for personal injury ($300,000 - single occurrence; $500,000 -aggregate) and property damage ($300,000 - single occurrence; $500,000 -aggregate) protection. The policy must cover damage to water wells and use of explosives. The policy must be maintained in full force during the life of the permit and any renewal thereof, including completion of all reclamation

operations (a statement from the company to this effect will suffice). The policy must also include a rider requiring that the insuror notify DEQ and OSM whenever substantive changes are made in the policy, including any termination or failure to renew.

28. After approval of the mine plan but prior to issuance of a permit to mine, the company must submit a bond for a total amount of $5,033,600 made payable to the State and the U.S. Government.

29. A minimum depth of 1 foot of compacted fill will be provided for all culverts.

30. A demonstration of embankment stability of the haul roads must be submitted to the regulatory authority within 1 month after acceptance of Departmental approval of the MRP.

31. If, during mining operations, previously unidentified cultural resources are discovered, the operator shall insure that the site is not disturbed and shall notify the regulatory authority. The operator shall insure that the resource(s) is properly evaluated in terms of the National Register of Historic Places eligibility criteria (36 CFR 60.6). Should a resource be determined eligible for listing in consultation with the regulatory authority and the SHPO, the operator shall confer with and obtain the approval of the regulatory authority and the Wyoming SHPO concerning the development and implementation of mitigation measures as appropriate.

32. The applicant will make a pre-blast survey if required by the regulatory authority or resident or owner of a dwelling or structure that is located within 1/2 mile of any part of the mine plan area.

33. The applicant will revise the blasting schedule to define times at which explosives will be detonated in no greater than an aggregate of 4 hours in any one day.

34. The applicant will revise the blasting log, within 2 weeks after acceptance of Departmental approval of the MRP, to include depth of holes, sketch of delay pattern, and number of persons in the blasting crew.

35. The applicant shall provide to the regulatory authority more detail on the design of signs to be placed, including size, information to be stated on signs, and location of all signs within 3 months after acceptance of Departmental approval of the MRP.

36. The company will describe to the regulatory authority the plan to be used for the control and disposal of non-coal wastes or demonstrate that there would be no need for such a plan within 2 months after acceptance of Departmental approval of the MRP.

37. The applicant must describe his plan for securing operation if a temporary or permanent cessation of mining is necessary. This information should be submitted to the regulatory authority within 3 months after acceptance of Departmental approval of the MRP.

38. The company shall not conduct any surface disturbance activities for the life of the mine within the SE¼NE¼ sec. 7, T. 47 N., R. 70 W.

APPENDIX C

Letter from the Soil Conservation Service

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Suite C - Centennial Center - 4th & Miller - Gillette WY 82716

October 25, 1978

Mr. John C. Mullen
Project Supervisor
D'Appolonia Consulting Engineers, Inc.
P. O. Box 22417
7400 South Alton Court
Denver, CO 80222

Dear Mr. Mullen,

We are writing in response to your letter of October 17, 1978 concerning Prime Farmland on the proposed Mobil Mine Site.

After reviewing your data we concluded that no Prime Farmland exists on the proposed Mobile Site. Several mapping units would qualify if an adequate supply of irrigation water were available. This water would have to be adequate in both quantity and quality.

The units that would qualify under the above conditions are:
380 Olney-Bowbac Association (only Olney part) and 392 Decolney-Olney Association.

If we can be of further assistance please let us know.

Sincerely,

Jerry D. Gavette

JERRY D. GAVETTE
Soil Survey Party Leader

Richard L. Gray

RICHARD L. GRAY
District Conservationist

APPENDIX D

Correspondence on Cultural Resources

30 JUL 1980

Mr. Louis Wall
Advisory Council on Historic
  Preservation
Lake Plaza - South
Suite 616
44 Union Blvd.
Lakewood, Colorado 80228

RE: Mobil Oil Corporation's Rojo Caballos Mine Plan (WY 0043)

Dear Mr. Wall:

The Office of Surface Mining is in the process of reviewing the Rojo Caballos Mine Plan pursuant to its responsibilities under the Surface Mining Control and Reclamation Act of 1977.

Mobil Oil Corporation had completed cultural resources inventories, prior to submitting its mine plan application, on all areas within the mine plan area except for three small areas. During the completion of the cultural resources inventory (see Attachment 1) of these areas, two sites were located. One has been evaluated as being ineligible (48CA517) for listing in the National Register. No evaluation has been made on the prehistoric site 48CA516. The archaeological consultant believes that an evaluation of the site, can not be made without determining whether the site contains any subsurface cultural materials. This would involve some limited testing at the site.

The site is located barely within the mine plan boundaries and almost one mile east of any surface disturbing activities (see Attachment 2). Mobil Oil Corporation maintains that the only reason the mine plan boundaries extend this far east of actual mining activities is due to the presence of a vegetation reference area in the southeast quarter of Section 1 (see Attachment 3). The reference area is fenced and will be undisturbed for the life of the mine. It will be used merely as a comparison for Mobil's revegetation efforts on those areas disturbed by mining activities.

In accordance with the provisions of the Programmatic Memorandum of Agreement (PMOA) among the Office of Surface Mining, the Bureau of Land Management, the U.S. Geological Survey and the Advisory Council on Historic Preservation, all sites located within the mine plan area are supposed to be evaluated to determine if these properties are eligible for inclusion in the National Register of Historic Places (Part II, C). Our office believes that in this case an exception should be made to these requirements. The site should be left undisturbed and the evaluation not made as it would necessitate testing, thereby disturbing the site.

We request your review and concurrence with our assessment that an exception to the PMOA should be made and the site left unevaluated.

Should you have any questions, please contact Judy Shafer at 837-5656.

Sincerely,

DONALD A. CRANE

Attachments

cc: Matton Botsford, BLM,
Casper District Office
Tom Larson, Wyoming SHPO
Joanne Wright, Mobil Oil Corporation

bcc: OFC-
Chron
Reading/RD

JAS:djw:7/24/80

Advisory Council On Historic Preservation

1522 K Street, NW
Washington, DC 20005

Reply to:

Lake Plaza South, Suite 616
44 Union Boulevard
Lakewood, CO 80228

August 29, 1980

Mr. Donald A. Crane
Office of the Regional Director
U.S. Department of the Interior
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

Dear Mr. Crane:

This is in response to your letter of July 30, 1980, regarding the Mobil Oil Corporation's Rojo Caballos Mine Plan, Wyoming. Judy Shaffer of your staff discussed this matter with Dr. Thomas F. King, the Director of the Office of Cultural Resource Protection at the Council. It is Dr. King's opinion that because of the special circumstance involved the Office of Surface Mining need not adhere to the strict letter of the Programmatic Memorandum of Agreement for archeological site 48CA516. I am writing to inform you of his decision.

Your concern for the proper execution of the PMOA is appreciated. We look forward to working with the OSM in the future as appropriate.

Sincerely,

Louis S. Wall
Chief, Western Division
of Project Review

1 6 SEP 1980

Jan Wilson
State Historic Preservation Officer
Wyoming Recreation Commission
Cheyenne, Wyoming

Dear Mrs. Wilson:

This Office is reviewing Mobil Oil Company's Rojo Caballos Mine Plan (WY-0043) for operations proposed to be located near Gillette, Wyoming under the Surface Mining Control and Reclamation Act of 1977 (SMCRA). As a result of this review, we will be making recommendations to the Secretary of the Interior.

Based on the following information we believe that our action, with respect to the Rojo Caballos Mine Plan, will have no effect, pursuant to 36 CFR 800.4, on cultural resources which are listed or eligible for listing in the National Register of Historic Places.

In compliance with Section 106 of the National Historic Preservation Act of 1966, we request your review and concurrence with this finding.

Our staff, in consultation with Tom Larson formerly of your office, determined that there were several small areas within the mine plan area which had never been inventoried. These areas have been identified on the enclosed map. OSM instructed Mobil Oil Company to have these remaining areas inventoried. A report of findings was submitted to your office after the survey was completed. During this survey sites 48CA516 and 48CA517 were located.

After reviewing the various cultural resources inventories prepared for the Rojo Caballos mine it has been determined that there are four historic sites and three prehistoric sites located within the boundaries of the mine plan area (see map).

Curtis Homestead (48CA1)
Schnieder Homestead (Site number unknown)
Schaller Homestead (48CA8)
48CA517
48CA128 (originally 48CA3 and 48CA95)
48CA45 (originally Arco 26)
48CA516

Evidently a fourth archeological site (48CA2) was recorded during the original survey, by Western Interpretive Services; later the site was renumbered 48CA94. Discussions with Tom Larson indicate that this area was removed from "site status" and from the file of the Office of the Wyoming State Archeologist upon recommendation of Mr. George Ziemens.

It is our opinion that none of these sites are eligible for listing in the National Register of Historic Places with the exception of site 48CA516 which was recommended by Western Cultural Resources Management (WCRM) as "potentially eligible". Apparently, your staff had already reviewed the Rojo Caballos mine plan area, before the survey by WCRM, and had determined that there are no sites eligible for listing, in as much as historical or archeological "clearance" was recommended (see attachments #1-6). WCRM had recommended that site 48CA516 be tested to determine its eligibility for listing in the National Register of Historic Places. However, because the site is located approximately one mile east of any surface disturbing activities, OSM felt it best if the site remain undisturbed and thus "unevaluated". At the recomendation of Tom King, Chairman, Advisory Council on Historic Preservation, OSM requested an exception to the Programmatic Memorandum of Agreement (see attachments #7 and #8).

Should you have any questions regarding this matter, please address them to Judy Shafer, (303) 837-5656.

Sincerely,

DONALD A. CRANE

Attachments

cc: Walter Ackerman, Wyoming DEQ
Wes Boettger, Mobil Oil Company
Matton Botsford, BLM-Casper District Office

bcc: OFC - WY 0043
Chron
Reading/RD

Shafer:vag:9/3/80

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET
CHEYENNE, WYOMING 82002

JAN L. WILSON
Director
777-7695

COMMISSION OFFICERS
E. LAWSON SCHWOPE
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ALBERT PILCH
1800 Morse Lee
Evanston 82930
DAN MADIA
1017 Victoria
Sheridan 82801

November 5, 1980

Mr. Donald Crane
Office of Surface Mining
Reclamation and Enforcement
1020 15th Street
Denver, Colorado 80202

RE: Mobil Oil Company, Rojo Caballos
Mine Plan (WY-0043)

Dear Mr. Crane:

Our staff has reviewed all of the material relating to this project and despite what seems almost impossible confusion, poor communication, and long time delays caused by many circumstances on each of the parties involved, we would offer the following recommendations.

Based on our review we would concur with your findings that the Rojo Caballos Mine Plan will have no effect, pursuant to 36CFR800.4, on cultural resources which are listed or eligible for listing in the National Register of Historic Places.

I would also agree with your determination that site 48CA516 should remain undisturbed, due to its location in relation to the surface disturbing activities. The exception to the Programmatic Memorandum of Agreement seems reasonable.

The State Historic Preservation Officer would, at this time, recommend cultural clearance of the mine site with the normal stipulation that should any cultural materials be discovered during the minine operation that the disturbance activity be stopped and the proper authorities be notified so a determination can be made regarding the significance of the materials.

Sincerely,

John F. Carlson, Chief
Resources Division and
Deputy SHPO

cc: State Planning Coordinator; Walter Ackermann, DEQ;
Wes Boettger, Mobil Oil; Manton Botsford, BLM, Casper

APPENDIX E

Lease W-23929

Form 3130–1
(October 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

362375

COAL LEASE

Land Office Serial Number
WYOMING
W-23929

This lease, entered into on FEB 1 1971 by the United States of America, the lessor, through the Bureau of Land Management, and

Mobil Oil Corporation
P. O. Box 5444 - T. A.
Denver, Colorado 80217

, the lessee, pursuant and subject to the terms and provisions of the act of February 25, 1920 (41 Stat. 437), as amended, hereinafter referred to as the act, and to all reasonable regulations of the Secretary of the Interior now or hereafter in force which are made a part hereof,

WITNESSETH:

Sec. 1. *Rights of Lessee.* The lessor, in consideration of the rents and royalties to be paid and the conditions to be observed as hereinafter set forth does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in the following-described tracts of land, situated in the State of Wyoming

T. 47 N., R. 71 W., 6th P.M.,
Sec. 2: SW¼NW¼, W½SW¼, S½SE¼
Sec. 3: S½N½, S½
Sec. 4: S½N½, S½
Sec. 5: S½NE¼, SE¼
Sec. 8: E½
Sec. 9: All
Sec. 10: All
Sec. 11: E½NE¼, SW¼NE¼, W½, SE¼
Sec. 12: SW¼NE¼, SE¼NW¼, W½NW¼, E½SW¼, SE¼

STATE OF WYOMING
Campbell County } ss. 362375
Filed for record this 7th day of July
A. D., 19 72 at 3:46 o'clock P M. and recorded in Book 77 of Mining Records
on page 313 Fees $ 11.00
County Clerk and Ex-Officio Register of Deeds

RECORDED ✓
ABSTRACTED ✓
INDEXED ✓
CHECKED ✓

Bond in sum of $ 10,000.00
with Federal Insurance Company
as surety filed.

containing 4,000.00 acres, more or less, together with the right to construct all such works, buildings, plants, structures, and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted.

Sec. 2. In consideration of the foregoing, the lessee hereby agrees:

(a) Bond. To maintain the bond furnished upon the issuance of this lease, which bond is conditioned upon compliance with all the provisions of the lease, and to increase the amount or furnish such other bond as may be required.

(b) Rental. To pay the lessor annually, in advance, for each acre or fraction thereof covered by this lease, beginning with the date hereof, the following rentals: 25 cents for the first year; 50 cents for the second, third, fourth, and fifth years, respectively; and $1 for the sixth and each succeeding year during the continuance of the lease, such rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid. For additional rental terms, see last page.

(c) Royalty. To pay the lessor a royalty of — cents on every ton of 2,000 pounds of coal mined during the first 20 years succeeding the execution of this lease. Royalties shall be payable quarterly within 30 days from the expiration of the quarter in which the coal is mined. For additional royalty terms, see last page.

(d) Minimum production. Beginning with the sixth year of the lease, *except* when operations are interrupted by strikes, the elements, or casualties not attributable to the lessee, or unless on application and showing made, operations shall be suspended when market conditions are such that the lessee cannot operate *except* at a loss or suspended for the other reasons specified in section 39 of the act, to mine coal each year and pay a royalty thereon to a value of $1 per acre or fraction thereof. Operations under this lease shall be continuous *except* in circumstances described or unless the lessee shall pay a royalty, less rent, on such minimum amount of the leased deposits, for one year in advance, in which case operations may be suspended for that year.

(e) Payments. To make rental payments to the manager of the appropriate land office, *except* that when this lease becomes productive the rentals and

FOR CLAIMANT

royalties shall be paid to the appropriate regional mining supervisor of the United States Geological Survey, with whom all reports concerning operations under the lease shall be filed. All remittances to the manager of the land office shall be made payable to the Bureau of Land Management, those to the Geological Survey shall be made payable to the United States Geological Survey.

(f) Plats, reports, maps. At such times and in such form as the lessor may prescribe, to furnish a plat showing development work and improvements on the leased lands and a report with respect to stockholders, investment, depreciation, and costs. To furnish in such form as the lessor may prescribe, within 30 days from the expiration of each quarter a report covering such quarter, certified by the superintendent of the mine, or by such other agent having personal knowledge of the facts as may be designated by the lessee for such purpose, showing the amount of leased deposits mined during the quarter, the character and quality thereof, amount of its products and byproducts disposed of and price received therefor, and amount in storage or held for sale. To keep and prepare maps of the leased lands in accordance with the appropriate regulations.

(g) Weights. To determine accurately the weight or quantity and quality of all leased deposits mined, and to enter accurately the weight or quantity and quality thereof in due form in books to be kept and preserved by the lessee for such purposes.

(h) Inspection. To permit at all reasonable times (1) inspection by any duly authorized officer of the Department, of the leased premises and all surface and underground improvements, works, machinery, equipment, and all books and records pertaining to operations and surveys or investigations under this lease; and (2) the lessor to make copies of and extracts from any or all books and records pertaining to operations under this lease, if desired.

(i) Assignment. To file for approval in the appropriate land office within 90 days from the date of execution, any assignment or transfer made of this lease, whether by direct assignment, operating agreement, working or royalty interest, or otherwise. Such instrument will take effect the first day of the month following its approval by the Bureau of Land Management, or if the assignee requests, the first day of the month of approval. The showing required to be made with an assignment or transfer is set forth in the appropriate regulations.

(j) Equal Opportunity clause. During the performance of this contract the lessee agrees as follows:

(1) The lessee will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The lessee will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The lessee will, in all solicitations or advertisements for employees placed by or on behalf of the lessee, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(3) The lessee will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the lessee's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the lessee's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the lessee may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The lessee will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The lessee will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: *Provided, however,* That in the event the lessee becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the lessee may request the United States to enter into such litigation to protect the interest of the United States.

(k) Land disposed of with coal deposits reserved to the United States. If the lands embraced herein have been or shall hereafter be disposed of under laws reserving to the United States the deposits of coal therein, to comply with all conditions as are or may hereafter be provided by the laws and regulations reserving such coal.

(l) Operations, wages, freedom of purchase. To comply with the appropriate operating regulations, to exercise reasonable diligence, skill, and care in the operations of the property, and to carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health or property, and of waste or damage to any water or mineral deposits; to fairly and justly weigh or measure the coal mined by each miner, to pay all wages due miners and employees, both above and below ground, at least twice each month in lawful money of the United States; to accord all miners and employees complete freedom of purchase; to restrict the workday to not exceeding eight hours in any one day for underground

workers, except in cases of [illegible]ncy; to employ no boy under the age of sixteen and no girl or woman, without regard to age, in any mine below the surface; unless the laws of the State otherwise provide, in which case the State laws control.

(m) Taxes. To pay when due, all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, output of mines, or other rights, property, or assets of the lessee.

(n) Overriding royalties. Not to create, by assignment or otherwise, an overriding royalty interest in excess of 50 percent of the rate of royalty first payable to the United States under this lease or an overriding royalty interest which when added to any other outstanding overriding royalty interest exceeds that percentage, excepting, that where an interest in the leasehold or in an operating agreement is assigned, the assignor may retain an overriding royalty interest in excess of the above limitation if he shows to the satisfaction of the Bureau of Land Management, that he has made substantial investments for improvements on the land covered by the assignment.

(o) Delivery of premises in case of forfeiture. In case of forfeiture of this lease, to deliver up to the lessor in good order and condition the land leased, including all buildings, and underground timbering and such other supports and structures as are necessary for the preservation of the mine or deposit.

Sec. 3. The lessor expressly reserves:

(a) Rights reserved. The right to permit for joint or several use such easements or rights-of-way, including easements in tunnels upon, through, or in the land leased, occupied, or used as may be necessary or appropriate to the working of the same or other lands containing the deposits described in the act, and the treatment and shipment of the products thereof by or under authority of the Government, its lessees or permittees, and for other public purposes.

(b) Disposition of surface. The right to lease, sell, or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the coal therein, or to dispose of any resource in such lands which will not unreasonably interfere with operations under this lease.

(c) Monopoly and fair prices. Full power and authority to promulgate and enforce all the provisions of section 30 of the act to insure the sale of the production of said leased lands to the United States and to the public at reasonable prices, to prevent monopoly, and to safeguard the public welfare.

(d) Readjustment of terms. The right reasonably to readjust and fix royalties payable hereunder and other terms and conditions at the end of 20 years from the date hereof and thereafter at the end of each succeeding 20-year period during the continuance of this lease unless otherwise provided by law at the time of the expiration of any such period. Unless the lessee files objections to the proposed terms or a relinquishment of the lease within 30 days after receipt of the notice of proposed terms for a 20-year period, he will be deemed to have agreed to such terms.

(e) Waiver of conditions. The right to waive any breach of the conditions contained herein, *except* the breach of such conditions as are required by the act, but any such waiver shall extend only to the particular breach so waived and shall not limit the rights of the lessor with r[illegible]ct to any future breach; nor shall the waiver of a particular cause of forfeiture prevent cancellation of this lease for any other cause, or for the same cause occurring at another time.

Sec. 4. *Relinquishment of lease.* Upon a satisfactory showing that the public interest will not be impaired, the lessee may surrender the entire lease or any legal subdivision thereof. A relinquishment *must* be filed in *duplicate* in the appropriate land office. Upon its acceptance it shall be effective as of the date it is filed, subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to provide for the preservation of any mines or productive works or permanent improvements on the leased lands in accordance with the regulations and terms of the lease.

Sec. 5. *Protection of the surface, natural resources, and improvements.* The lessee agrees to take such reasonable steps as may be needed to prevent operations, including operation of operating plants on the leased premises, from unnecessarily: (1) causing or contributing to soil erosion or damaging any forage and timber growth on the leased lands or on Federal or non-Federal lands in the vicinity; (2) polluting air and water; (3) damaging crops, including forage, timber, or improvements of a surface owner; (4) damaging improvements whether owned by the United States or by its permittees or lessees; or (5) destroying, damaging, or removing fossils, historic or prehistoric ruins, or artifacts; and upon any partial or total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required and to the extent deemed necessary by the lessor to fill any sump holes, ditches, and other excavations, remove or cover all debris, and, so far as reasonably possible, restore the surface of the leased land and access roads to its former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to the leased lands and improvements thereon, whether or not owned by the United States.

Sec. 6. *Removal of equipment, etc., on termination of lease.* Upon termination of this lease, by surrender or forfeiture, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials, *except* underground timbering placed by the lessee in or on the leased lands, which are necessary for the preservation of the mine. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions, but the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. *Proceedings in case of default.* If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or default in the performance or observance of any of the provisions of this lease, and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, the lessor may institute appropriate proceedings in a court of competent jurisdiction for the forfeiture and cancellation of this lease as provided in section 31 of the act. If the lessee fails to take prompt and necessary steps to prevent loss or damage to the mine, property, or premises, or danger to the employees, the lessor may enter on the premises and take such measures as may be deemed necessary to prevent such loss or damage or to correct the dangerous or unsafe condition of the mine or works thereof, which shall be at the expense of the lessee. However, the lessee shall not be held responsible for delays or casualties occasioned by causes beyond the lessee's control.

Sec. 8. *Heirs and successors in interest.* Each obligation hereunder shall extend to, and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. *Unlawful interest.* No Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of section 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22), and sections 431, 432, and 433, Title 18, U.S.C., relating to contracts, enter into and form a part of this lease so far as the same may be applicable.

THE UNITED STATES OF AMERICA

By Alma Lundberg
(Signing Officer)

Alma Lundberg
Acting Assistant Manager, Mining
(Title)

JAN 20 1971
(Date)

WITNESS TO SIGNATURE OF LESSEE

Assistant Secretary

MOBIL OIL CORPORATION

(Signature of Lessee)
Attorney in Fact

(Signature of Lessee)

(Signature of Lessee)

(If this lease is executed by a corporation, it must bear the corporate seal)

(b) Rental. A lease resulting from this offer will provide for the payment of the following rentals for each acre or fraction thereof included in the lease: $1 for each of the first five (5) years, and $5 for each succeeding year during the continuance of the lease, each rental for any year to be credited against the first royalties as they accrue under the lease during the year for which the rental was paid.

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(c) Royalty. To pay the lessor a royalty of 17½ cents a ton of 2,000 pounds for coal mined by surface auger or strip mining methods for the first 10 years of the lease and a royalty of 20 cents a ton of 2,000 pounds for coal mined by surface auger or strip mining methods for the remainder of the first 20-year period succeeding the date of this lease.

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